THE BOSTON
Medical and Surgical
JOURNAL

VOLUME 196 JUNE 9, 1927 NUMBER 23

The Massachusetts Medical Society

INDUSTRIAL SURGERY*

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I. HISTORY

INDUSTRIAL medicine and surgery has been defined as a combination of preventive and curative medicine, applied to groups of working men and women. This field of medical activity germinated and evolved with the transition of the country from an agricultural to an industrial one and has grown with mushroom-like rapidity during the last quarter-century, and more especially during the last sixteen years, until it is today a well-developed specialty. In the forty years between 1880 and 1920 there was a decrease of 33,000 farms in New York State, while over against this decrease in agricultural pursuits, we find an increase of 30,000 factories in the twenty-six year period from 1900 to 1926. Synchronous with this growth in the number of manufacturing concerns has come a complicity of mechanical devices, an intricacy of machinery requiring the nicest attention of the worker to detail, the closest concentration on each movement of foot or hand, and a rapidity and deftness of motion almost superhuman. So interdependent are the countless processes that go to make up a single product, in this era, that the ill-timed movement of one operator may endanger the lives of many. Unfortunately, in spite of the high degree of perfection to which man has brought the machine, product of his creative mind, he is powerless to remedy the faults in his own mechanism. "His movements fall into a natural rhythm indeed, but the beat is both less rapid and more irregular than the rhythm of most machines. . . . Fatigue overcomes him, slowing his movements, lengthening his reaction time, and diminishing his muscular accuracy, thereby trebly enhancing his liability to accidents." "Accidents, therefore, cannot be entirely obliterated and compensation cannot pay entirely the 'blood tax' of industry." Gradually this conception of the responsibility of the industrial world for its workers has come into being. Seventy-five years ago, the individualistic theory prevailed that the worker voluntarily assumed the hazards of his work when he was employed—that he was a free agent, knowing of the dangers to which he subjected himself and capable of guarding himself against them.

The principle of the state assessing the employer for the cost of medical and surgical aid and of monetary compensation during the period of disability, making it a matter of law and right as opposed to charity, is of German socialistic origin, the first important legal expression of it being the German Employers' Liability Law of 1871. So revolutionary was this idea that it was at first made applicable only to the more obviously hazardous occupations. This led to the compulsory industrial accident insurance laws of 1884. The various European countries followed Germany's lead—Austria in 1887, Hungary in 1891, Norway in 1894, Finland in 1895, France and Italy in 1898, Spain in 1900, Holland in 1901 and Russia in 1904. England passed an Employers' Liability Act in 1880 and a Workmen's Compensation Act in 1897.

In the United States this shifting of responsibility from the individual worker to industry as a whole, however, seems to have come with a tardy awakening of the industrial conscience, and it was not until 1908 that a faint stirring of it was felt in the law passed by the federal government compensating government employees engaged in hazardous occupations. In 1909, there was another slight quickening when Massachusetts enacted a statute which authorized voluntary plans of compensation. By 1911, ten states, of which Massachusetts was one, had passed workmen's compensation laws. The World War had much to do with emphasizing the importance of the conservation of man power, and during the years of the War and the years immediately succeeding, the remaining states passed compensation legislation.

II. PRESENT LEGAL STATUS IN THE VARIOUS STATES

According to Jones' digest of workmen's compensation laws in the United States (1925), in 42 states and in 3 territories the working man is now afforded this protection. Six states have

*The Annual Discourse delivered before the Massachusetts Medical Society, at Boston, June 8, 1927.

no compensation laws. In 12 states and in 2 territories compensation is compulsory in some or all private employments. In 28 states and in 2 territories it is compulsory as to some or all public employments. In 30 states and in 1 territory compensation is elective as to all private employments affected, in 9, it is elective in all public employments.

Insurance

Insurance, security, or proof of responsibility is required by 40 states, while 2 states and 1 territory demand neither of these three guarantees. Insurance is secured by a state fund in 17 states and in 1 territory; 25 states have no state fund insurance.

Administration

There is some variance in the manner in which compensation laws are administered in the various states. The method used in 31 states and in 1 territory is that of a single Commissioner, or else that of a Board or Bureau of Commissioners. The courts administer the law directly in 7 states and in 1 territory. The other 4 states have some slight divergence from the regular methods: in New York, for instance, there is a single Commissioner, who generally administers the law, but judicial questions are decided by an Industrial Board.

Compensation

The British law, which was the foundation of our own, allows for total disability a compensation of one-half the weekly wage, and for partial disability a compensation of one-half the loss of earning capacity. For disability of less than one week, no compensation is allowed, nor is there compensation for the first week if the incapacity lasts for but two weeks. Under the British law, the employer is individually responsible.

Thirteen of our states follow the British law and allow, for total disability, one-half the average weekly wage, and for partial disability, one-half the loss of earning capacity. In eleven states, the proportion is two-thirds the average weekly wage; in seven states, 60%; in four states, 65% of the average *weekly* wage, and in two states, 65% of the average *monthly* wage; in two states the percentage allowed is 55; and three states have each a wording peculiar to itself: thus, in Oregon, the law reads "from 40% to two-thirds of the wages according to the employee's domestic circumstances during disability." In Wyoming, a lump sum is given and so much a year for each child. There is great variance in the maximum weekly amount allowed, ranging from $12 in Alabama to $21 in Connecticut. Many states make special provisions where there are children.

Definition of the Law

The definition of the compensation law as carried out in the various states hinges on the words "personal injuries," which may be said to be the crux of the confusions and difficulties which have arisen in connection with the administration of this law from the time of its inception. The English compensation act (1897) used the phrasing "personal injury by accident arising out of and in the course of employment," and that wording is followed by Arizona, Colorado, Indiana, Kansas, Kentucky, Louisiana, Maryland, Minnesota, Nebraska, New Hampshire, New Jersey, Oklahoma, Oregon, and Rhode Island. The words "by accident" are omitted by the other states except Illinois and Wisconsin, where the wording is "while engaged in the line of his duty as such employee." Maine, Massachusetts, Montana, Ohio, Texas and West Virginia omit the word "accident" and qualify "personal injury" only by the phrase "arising out of and in the course of his employment." In England, the term was not satisfactorily defined until 1903, when Lord MacNaughten interpreted it as "denoting an unlooked for mishap or an untoward event which is not expected or designed," and in 1906, a separate statute enumerated twenty-four diseases in which compensation should be allowed.

Medical Attendance

In most of the states the legal phraseology respecting medical attendance is: "The injured employee, if requested by the employer or ordered by the Board, must submit to medical examination at reasonable times and places. The employee may have his own physician present. Refusal to submit suspends, and unless justifiable, forfeits the right to compensation during continuance." There is some difference in wording in some states, but in general the phrasing has this import.

III. THE LAW IN MASSACHUSETTS

The Massachusetts law is administered by the Industrial Accident Board, consisting of seven members appointed by the Governor with the consent of the Council, one member being designated Chairman by the Governor. The Chairman appoints five members to serve as a Reviewing Board.

The employer is required to report any injury to the Industrial Accident Board within forty-eight hours, and a conference for the adjustment of any difficulty may be arranged between a member of the Industrial Accident Board, a representative of the insurance company, and the person making claim for compensation. If no satisfactory agreement is arrived at, a claim for review may be filed, and after a hearing of the parties by the Board, the decision of the member of the Board may be revised if it seems

necessary. Any party interested may then present certified copies of an order or decision of the Board, a decision of a member from whom no claim for review has been filed within the time allowed, or a memorandum of agreement approved by the Board and all papers in connection therewith to the Superior Court for the county in which the injury occurred, whereupon a decree will be rendered by the Court. From this decree there is no appeal on questions of fact.

Insurance (Massachusetts)

By the Acts of 1912 the Massachusetts Employees Insurance Association was created with power to transact any kind of liability insurance which mutual companies may transact. Any employer in the Commonwealth is eligible to membership and the vote in the Association is *pro rata:* each subscriber is entitled to one vote, but if he has 500 employees, he has two votes, and an added vote for each additional 500 employed, with a maximum allowance of 20 votes. By the laws of 1912, also, mutual insurance companies were authorized to transact the business of employers' liability.

Definition (Massachusetts)

In Massachusetts, the word "injury" includes "whatever lesion or change in any part of the system produces harm or pain or a lessened faculty of the natural use of any bodily activity or capacity." Thus the Massachusetts law admits of broad interpretation, allowing compensation for quite remote sequelae of the immediate accident. When the causal connection is indisputable, even such distant results as insanity or suicide may be brought within the meaning of the law, and it is applicable in cases where the injury has been the cause of an acceleration of preëxisting disease. In this state, too, occupational diseases come under the compensation law, while in Connecticut, Michigan and Ohio they are not included.

IV. MEDICAL ASPECTS

This brief review of the history of indemnity for injury and of the law as it stands today in the United States will show the transitional steps which have led to its present somewhat imperfect status. The differences in wording and conception in the various states demonstrates that it is still in a state of flux. Not yet is the law so clearly defined that there is no room for dispute, nor the machinery for administering it so well-lubricated that there is no chance for friction. Thus the physician or surgeon called in on an industrial case has much at stake. To a great extent he can control the amount of permanent disability, influence the compensation to be paid, and act as the arbiter of disagreements which would otherwise have to come before the Industrial Accident Board. It is, therefore, necessary that the industrial surgeon be conscientious; every case which is brought to his attention should be considered as serious from its inception, for very often it is the small wound which causes the most trouble. The larger wound, by reason of its very extent, will drain well and often heal under adequate surgical care, and though the drainage wound of necessity brings the responsibility of a major problem, in case of doubt, a consultation can be arranged.

In considering the common forms of trauma for which compensation is sought, one finds certain types common to specific classes of work. Injury to the human body is brought about in one of three ways: (1) the human body, as a movable object, is projected against a stationary object; (2) the human body, as a stationary object, is struck by the movable object; (3) the human body is injured by a tool, utensil, or mechanical appliance. An interesting diagrammatic analysis of the causes of accidents in the steel industry, published in the United States Steel Corporation Bulletin No. 11, shows that the largest number are caused by hand labor (43.35%) and that of these, 14.42% are the result of material falling upon the hand worker, 7.08% are occasioned by sledge hammers, 5.92% by the worker being caught between material, 5% by strains, 4.66% by slivers or sharp edges, and 4.27% by the worker running into something. In the steel industries, mining accidents are second in frequency to those of hand labor, burns coming third, eye injuries fourth, falls comprising the fifth larger class, and accidents caused by machinery are least often met with. It is rather remarkable that of the injuries produced by falls, the largest proportion was due to slipping or tripping on the *level* ground, and that in the accidents by machinery, only 0.22% were due to the machinery's breaking, the largest number being the result of the workmen's getting caught in the machinery or being struck by it.

We find, also, in the industrial accident field that posture often enters into the type of trauma to which the worker is most subject. For instance, men who work at great heights, as in the building trades, are exposed to falls. Death may take place immediately, or, very commonly, there may result a fracture of the vault or base of the skull, or a fracture of the upper part of the spinal column. On the other hand, the worker who assumes a bending position, as the laborer using pick and shovel, exposes the lower part of the spinal column to injury by the falling of a heavy object upon his back. This may cause serious crushing of the lower vertebrae and pelvis, or muscular strains of various sorts at or about the sacro-lumbar region.

While fractures are of paramount importance in industrial surgery, comprising a large number of the cases seen, the treatment here is

no different than in general practice. The aim is to give not only good operative but the best possible functional results, and to restore the the worker, if possible, to his former occupation; or, if this is not within the surgeon's power, to enable him to do some other form of work. "Satisfactory function" is a term capable of different interpretation by the surgeon and by the worker, but it should be borne in mind that serious malposition, infection, or persistent pain can have no place in "satisfactory function" from the worker's standpoint.

The question of hernia is one of such moment in industrial surgery that it is the subject of definite rules laid down in the compensation acts of many of the states. It is said to occur with such frequency as to be regarded as "the greatest single frailty of the American worker," and that the immigrant laborer, whose food is not muscle-building, is most prone to be affected by it. It is, however, a condition which admits of fraud and malingering and, even where the intentions are of the best, of varying interpretations. The Oregon Commission requires affidavits to prove the non-existence of hernia before the accident. The Washington Commission requires proof that the hernia is of recent origin, is accompanied by pain, was immediately preceded by an accidental strain, and that it did not previously exist. It is the policy of the California Commission to compensate for any hernia, whether complete or incomplete, resulting from a strain, a wrench, or other industrial injury; but a chronic hernia, if injured or aggravated by injury, is not ordinarily compensable. A hernia which was merely incipient and was subsequently completed through injury is ordinarily compensable and in that state it is not necessary that there be immediate collapse or disability; it is only necessary to show pain or discomfort accompanying the alleged injury. The number of *bona fide* traumatic herniae is very small; one author affirms that less than one in a thousand is of this type. Because of its frequency, however, because it is a disputable problem, and because it is to the best interests of industry to return the worker to his employment as quickly as possible, it is the established policy of many industries, where occupation is even a remotely contributing factor, to repair surgically all herniae amenable to this type of treatment and to provide trusses where herniotomies are contra-indicated. In this manner, disputes as to malingering are done away with and industry has the benefit of an often-time faithful and deserving worker restored to his work with least expense and time lost.

Another important point in industrial surgery is the relationship of trauma and the late neurological manifestations of syphilis. Errors in diagnosis may lead to uncalled for compensation, since neurosyphilities are especially liable to injury, inasmuch as they are subject to fits, optic atrophy, unsteadiness in gait, ataxia of the arms, diplopia, and mental changes. Mock gives the history of a painter whose symptoms were diagnosed as due to lead poisoning, whereas later, more careful examination led to a final diagnosis of syphilitic spinal meningitis. Loss of eyesight may be due to tabes optica; or an injured knee, supposedly damaged in an accident, may prove to be a Charcot joint. Thus, neurological examination, too often neglected, is a significant adjunct to the pre-employment examination, as well as to examination following injury.

In addition to the above-mentioned conditions there is a large range of pathology which is the direct result of some attribute of the material worked upon—the so-called "occupational diseases." Mock, quoting Hoffman, tabulates forty-two industries which are the source of dust inhalation. This dust is classified as: (1) metallic dust, such as brass workers, printers, engravers, and jewelers are exposed to; (2) mineral dust, which menaces marble workers, plasterers, and paper hangers; (3) vegetable fiber dust, which comes from cotton ginning, flax and linen manufacture, and cabinet making; (4) animal and mixed fiber dust, to which furriers and taxidermists, carpet makers and upholstery makers are exposed. Then there is the group of industrial poisons, which may be subdivided according to the effect produced upon the body: (1) poisons which act superficially, producing lesions of the part of the body they touch; (2) poisons which are absorbed by the blood, having a deleterious effect upon it; (3) poisons which act upon specific organs or tissues, such as the nerves or heart. Lead poisoning is the most wide-spread of metallic industrial poisonings. One writer on the subject says that lead is used in not less than 138 industries. These cover a wide range: glazing and decorating pottery, tiles, etc., the production of storage batteries, painting processes, rubber goods manufacture, laying electrical cables, making artificial flowers, etc. It is typically a cumulative poison, the symptoms appearing either as those of an acute or chronic intoxication.

Zinc poisoning takes the form of an ague, with an acute malaria-like chill, sometimes accompanied by fever, lasting one-half to three hours, terminating in profuse sweating and exhaustion. It is consequent upon the inhalation of zinc fumes by workers in brass and bronze industries. Arsenic poisoning may set up an eczema and ulceration of the skin, or general poisoning may be caused by the ingestion of salts of the metal or inhalation of arsenical fumes. Those exposed to this form of poisoning are workers engaged in the manufacture of candles and wax ornaments, japanned goods, gloves, artificial leather, oil-cloth, linoleum, cut glass, etc. The silvering of mirrors, making of thermometers and barometers, electrical meters, and the manu-

facture of mercurial salts or explosives, all expose the worker to mercury poisoning. In the distillation and purification of phosphorus dangerous fumes, both of phosphorus and phosphoretted hydrogen, arise and are a menace to those engaged in the manufacture of cartridges and cannons.

Because of the dangers in these industries, in many states there has been special legislation to safeguard the conditions under which the worker is employed and to protect women and children. In 1911 California, Connecticut, Illinois, Michigan, New York and Wisconsin passed laws requiring notification of occupational diseases. Maryland and New Jersey followed in 1912; Maine, Massachusetts, Minnesota, Missouri, New Hampshire, Ohio and Pennsylvania in 1913; Rhode Island in 1915.

Prevention

As prevention in medicine is coming more and more to the foreground as the primary object of the profession and stress on this aspect is superseding the importance formerly only given to *cure*, after the disease was well on its way, so in industrial medicine and surgery, more and more emphasis is being laid upon pre-employment and periodic post-employment examinations. While at first glance a health examination may seem a hardship in that it may deprive an unsound but deserving man of a job, on analysis it does not seem to work out that way. Wm. B. Fisk, Chief Surgeon of the International Harvester Company, states that scarcely 1% have been rejected by them as unfit. On the other hand, an examination serves to fit the worker to the type of employment for which he is best suited physically and mentally, resulting in conservation of man power. Periodical examinations, likewise, at least every six months, will better industrial conditions, protect coworkers, and benefit the diseased worker himself by detecting and putting under treatment at the earliest possible moment an incipient tuberculosis, or by discovering a cancer while it is still in the operable stage. Moreover, a physical examination before a man is transferred from one department to another, or put upon a different kind of work, will make it certain that he is kept on jobs suitable for him.

V. PROGRESS IN INDUSTRIAL MEDICINE AND SURGERY

Starting with a "company doctor," perhaps only called in as necessary, and a nurse, who, because there was no one higher in attendance, must be a physician and surgeon, even performing minor operations, the medical personnel of the modern industrial plant has come to include full-time physicians and surgeons of the highest type, adequately compensated, nurses and orderlies, and all the armamentarium of a well-equipped hospital. Industrial medicine and surgery, from being rather looked askance at, has attained the dignity of a specialty, with journals or sections of journals devoted specifically to it and special medical school courses designed to teach it.

No better illustration of what can be accomplished by a homogenous group can be cited than the industrial welfare work of the United States Steel Corporation. The growth of this work is best told in a brief résumé of the steel industry in this country, which began with the building of the first furnace for smelting iron on the James River, in 1621, by Englishmen under the guidance of John Berkeley. It has not been until within the last fifty years, however, that the steel industry has increased so enormously as to now employ over six hundred thousand people and produce annually more than sixteen hundred million dollars' worth of material. In the early days, all attention was necessarily concentrated on building up this great industry. In 1901, ten separate steel companies organized to form the United States Steel Corporation. Gradually, with the work established on a firm footing, the attention of the industrial managers was drawn to the finer details respecting efficiency and economic production. In 1906, a Safety Committee was appointed to study welfare matters, and in 1911, a central Bureau of Safety, Sanitation and Welfare, with subsidiary committees in the various companies. This Bureau is in constant communication with state and national authorities, with other employers of labor, and with representatives of foreign countries engaged in like work. Each Subsidiary Company has committees composed of foremen, master mechanics and skilled workmen, who investigate particular problems. There are also among the rank and file committees which report accidents and make recommendations to the central Bureau. Trained under the supervision of the company doctors are crews of six voluntary first-aid assistants, who take immediate charge in case of a serious accident, administering artificial respiration and resuscitation, or provide the necessary aseptic dressings to prevent infection of wounds. Each Subsidiary Company has an emergency hospital, to which all cases, no matter how trivial, are immediately sent and treated by competent surgeons and trained nurses, to be transferred later, if necessary, to a base hospital, usually a public one. On December 31st, 1925, the Corporation had 11 base hospitals, 383 emergency stations, 58 training stations for first-aid and rescue work, and employed 233 company surgeons and 117 outside surgeons on a salary basis.

In 1910, the United States Steel Corporation established a voluntary accident relief plan, a year previous to the passing of compensation laws by the earliest states legislating on this subject. This voluntary plan has now, of course,

been superseded by the workmen's compensation laws of the various states in which the Subsidiary Companies are located.

Supplementing this well-organized scheme of accident prevention and care for the injured, every attention is given to the minutest detail which will aid in physical, mental and moral well-being: gardens where the workmen may do wholesome, out-of-door work; a market, run under the best sanitary conditions, where he may dispose of his surplus garden truck and buy good food; restaurants, where he may eat economically yet healthfully; playgrounds, picnics, musical organizations; day nurseries, where the children of widows who must work will be cared for; visiting nurses, who will instruct mothers in the care of their children and how to run a home with thrift and yet so as to supply the men and children with nourishing food. No slightest detail which will contribute to a "sane mind in a healthy body" is neglected.

Moreover, it has been found that all of this pays, not only from an humanitarian point of view, but also on a cold dollars-and-cents basis. The serious and fatal accidents are now only about one-half of what they were in 1906. Experience has taught that fully 80-90% of the industrial accidents can be eliminated if the work is properly organized, and the necessity of educating the worker is demonstrated by the fact that statistics show 70-80% of all accidents to be attributable to thoughtlessness or carelessness on the part of the workman himself, or that of his fellow-workmen. The Government, a few years ago, made a careful investigation, the results of which showed that the steel mills in this country are the safest in the world, and that in spite of the attention given to accident prevention in Germany, the rate of accidents in the steel mills there, over a period of 13 weeks, was more than 17 per 1,000 employed, as against a rate of 10 per 1,000 employed in the mills of this country.

VI. FLAWS IN THE PRESENT SYSTEM AND RECOMMENDATIONS

On June 12th, 1926, the American College of Surgeons appointed a Research Group of the Committee on Traumatic Surgery to make a report on existing conditions. A questionnaire was sent out to well-qualified surgeons throughout the country, covering the following points: (1) Type of surgeons doing industrial surgery: their standing and qualifications, and whether they give value received; (2) Tendency of industrial surgeons to attempt treatment of cases beyond their skill, and disinclination to seek consultation; (3) Surgeons' fees; (4) Type of surgery which the insurance companies seek—whether it is of the highest type; (5) Hospitals and their charges; (6) Value of physiotherapy; (7) Control of surgical care versus privilege of injured to select his own physician; (8) Traumatic appendicitis; (9) Tendency of doctors and claimants to couple to the injury any disability arising through sickness, on the theory of "aggravation"; (10) Advisability or inadvisability of adopting rules governing the maximum cost of surgical obligation; (11) Fracture problem.

A brief summing up of the answers received brings out the following facts:

(1) In small towns and outlying districts the surgical service is inadequate because there are available one or two doctors only, and these are often not competent to render adequate service. In the larger cities, the best surgical service has often not been procurable because, owing to the large amount of "paper work" required, or due to the fact that it did not offer sufficient interest, the better type of surgeon has not cared to undertake this type of work. While a few clinics have been established, organized along ethical lines, in which good service is rendered, many of these clinics have sprung up which have been unethical.

(2) There has been a widespread tendency on the part of industrial surgeons to neglect to call in the necessary consultants.

(3) In general, the fees paid have been found to be greater than those in private practice.

(4) There has been a tendency on the part of the insurance companies to employ a low grade of service, or to allow the injured to select his own surgeon, with the result that inadequate care has been given.

(5) As a rule, hospital charges in the larger cities have been standardized and are satisfactory. The Research Group made an exception of X-ray fees in hospitals, which they found excessive.

(6) Physiotherapy is a problem which, the Research Group believes, needs further investigation by reason of the commercialization of this type of treatment. Often it becomes mechanical, with physician and injured failing to coöperate, and is carried on from week to week and from month to month until the patient becomes a psychological case as well as an anatomical one.

(7) The control of the selection of surgical care and the selection of a hospital should be left to the insurance carrier, through the employer.

(8) From a consideration of cases coming to the attention of the Research Group, it would seem that appendicitis should not be recognized as a condition growing out of injury.

(9) There is a growing tendency to exaggerate the theory of aggravation of preëxisting lesions by injury.

(10) The formulation of rates governing the maximum cost of surgical service is advisable.

(11) The question of fractures was considered to be the most serious from the standpoint of human wastage and it was recommended that these cases should be provided with emergency splints and proper transportation and immediately sent

to a recognized hospital where proper care could be given. The Research Group deplored the very prevalent practice of employing the open operation as the initial treatment of fracture by surgeons with limited experience and limited hospital facilities, also the tendency of Commission Examiners to base compensation on anatomical deformity rather than on loss of function.

(12) Attention was called to the fact that practically all of the Compensation Boards are composed of laymen. The position of the Medical Examiner to the Board is such that he can only pass his opinion and make recommendations which the Board can accept or deny as it sees fit. The Board's problems are largely surgical: a decision on types of injuries, extent of injuries, and percentage of impairment. It would, therefore, seem fitting that a surgeon be appointed as an acting member of such Board.

With the results of the investigations of this Group may be compared those of the special commission to investigate the operation of the Workmen's Compensation Law in Massachusetts, appointed by the Governor, as a result of a Resolve of the Legislature, in September, 1926. Dr. Samuel B. Woodward of Worcester was a member of this Commission. This appointment was most fitting inasmuch as Dr. Woodward has long stood as representative of the highest type of physician and public servant, having been the President of the Massachusetts Medical Society, served on the Board of Trustees of a State hospital, and ready at all times to use his time and influence in behalf of humanity. The final report made by this Commission was a lengthy and exhaustive consideration of the whole subject and there is only space here to outline it briefly.

Certain minor recommendations were made: the inclusion under the Act of those employed in violation of the law; the simplification of proceedings before the Industrial Accident Board; a provision to enable the Superior Court to reserve Workmen's Compensation Cases for the Supreme Court; the question of leaving to a single member of the Board who had the case under advisement the matter of cessation of weekly payments; the confinement of compensation to accidents occurring actually on the premises of the employer or while the employee was engaged in business for the employer.

Regarding compensation the Commission recommended: that no compensation be paid for any period for which wages were received, thus doing away with duplication of pay in those cases where disability did not begin until after the date of the accident; that compensation might be given in a lump sum at the discretion of the Board; that the maximum compensation per week be raised to $19 and the minimum to $9; that a distinction be made between compensation for right and for left hand; that a more effective way of measuring loss of vision be substituted; that there be a distinction of value between loss of thumb and forefinger and other fingers, and between the loss of the great toe and other toes; that compensation for loss of hearing and for facial or head disfigurement be included; that a workman once injured be permitted to waive compensation if he so desires, to obviate the difficulty of an injured workman's getting a second job.

Various questions relating to medical care were considered. The Commission felt that hospitals should not be forced to accept compensation cases as charity and should be adequately compensated. It did not feel, however, that hospitals should be allowed to charge according to their own discretion, but that a maximum rate should be set, as is at present done. It was of the opinion that this rate should be regulated by conference with a hospital committee frequently, say every two years, and that the present maximum of $21 a week and "reasonable extras" is below the average cost of such service in the hospitals of the state, and is a matter which should be conferred upon. Suggestion was also made that all records and reports of hospitals, clinics and physicians of the insurer or of the employee should be open to inspection by the Department.

The question of the advisability of a state fund was given careful consideration by the Commission and turned down for the following reasons: A major criterion of the value of any method of paying compensation is the length of time required for the first compensation to reach the injured, after injury. A comparison was made with Ohio, which has the most efficient system of state fund compensation, and it was shown that this period, in Ohio, was 37 or 38 days, while in Massachusetts it was a little better than half this, 18.9 days. Also statistics prove that under the state fund system, the state is more rigid than the insurance companies in allowing compensation. Three members of the Board, however, dissented from this opinion in minority reports, in which they recommended a state fund.

The Commission also favored the restatement of classes employed by the Commonwealth or by counties, cities, towns or districts, coming under the law (now restricted to laborers, workmen, and mechanics) to include other classes if desired.

A Suggested Rehabilitation Amendment was appended to the proposed changes in the law, according to which the insurer would pay to the state a certain percentage of the amounts payable to employees, to be held as a fund for rehabilitation. For every dollar paid by the insurer, a dollar would be paid by the Commonwealth, and those two dollars would be used to obtain the federal allotment, which matches whatever a state may spend on rehabilitation work, dollar for dollar. Thus, for every dollar contributed

by the insurers, there would be spent for rehabilitation four dollars.

While this paper was still in process, the text of the Amendments to the Workmen's Compensation Law which were consequent upon the investigations of the commission appointed by the Governor, late in 1926, has just become available. Most of the recommendations of the Commission have been enacted into the Acts of 1927, Chapter 309, and very significant improvements have been effected thereby. All medical records and reports of hospitals, clinics and physicians of the insurer or of the employee have been made open to inspection; compensation has been extended to cover injury at any place within or without the Commonwealth, if the employee was engaged in business for the employer; restriction has been placed upon claiming compensation for any period during which wages were earned; the limit of time during which medical aid is furnished previous to the payment of compensation has been extended in unusual cases, or cases requiring specialized or surgical treatment, at the discretion of the Department. While the amended law does not quite reach the sum stipulated by the Commission as the maximum weekly compensation—nineteen dollars—it has raised the amount from $16 to $18 and the minimum from $7 to $9; also the total amount of compensation paid has been brought up to $4500 from $4000. Provision, too, has been made for the payment of compensation in a lump sum. While formerly a widow was allowed $2 a week additional compensation for each of three children, this section has been so altered that no limit is set upon the number of children for which added compensation is allowed. The recommendation of the Commission that, at the discretion of the Department and with its approval, an employee peculiarly susceptible to injury be permitted to waive his rights to compensation has been incorporated into the Law, as has also its recommendation that the class of employees of the state, county, city, or town coming under the law be extended to include, besides laborers, workmen and mechanics, also foremen, subforemen and inspectors.

These are all changes of inestimable value, but a retrospective view of the recommendations of the American College of Surgeons Research Group and those of the Commission appointed by the Governor, which formed the basis of these amendments to the Law, confirms the following points:

No plan or system will meet the problem adequately which does not provide for consultation facilities. No one surgeon can be equally proficient in traumas, in abdominal surgery, and in disease of the ear, eye, nose and throat. While industrial clinics have been established to meet this need, under our present system this is only an added facility which may, if desired, be taken advantage of, but at added expense.

Another incontrovertible fact is that one member, at least, of the State Compensation Board should be a physician. The inadvisability of having compensation cases judged entirely by a board composed of laymen only is obvious.

The objections to physiotherapy have been met rather adequately in Milwaukee by the so-called "Curative Workshop." Here physiotherapy, mechanotherapy and occupational therapy are combined under an efficient system. Each patient must have a prescription blank from his physician, indicating the treatment required. The physician makes the appointment for the patient and is kept informed of the kind of treatment he is receiving and his progress. A full history is taken of every case so that everything bearing upon it may be known. Treatment is given by a registered therapist. Careful records are kept: a treatment sheet, a workshop sheet; if posture is faulty, a posture sheet; if there has been injury to nerves or muscles, a nerve or muscle sheet; a record of the patient's mental attitude and degree of co-operation. A report is made to the employer or insurance carrier, indicating the time spent in the workshop and the name of the physician who has had charge of the case. If the patient is sufficiently restored to go back to his former occupation, he is returned to the employer or insurance carrier, or if not, he is sent to the rehabilitation agency so that he may be trained for some other work.

Progress in any line is gradual and is brought about by experimentation and by education. We will not have achieved a millenium in industrial surgery until the surgeon has been inculcated with an ideal of what is expected of him, and the laity has been imbued with a conception of what it may rightly expect. That a milepost has been passed on the way to reaching this goal is shown by the fact that on the day on which this paper was being written a newspaper contained a popular health article relative to X-ray examination which said: "Our compensation or other boards are inclined to take the view that as the X-ray shows nothing, there cannot really be any trouble. An Edinburgh surgeon, speaking about the large number of genuine back injuries that are not revealed by the X-ray, tells his colleagues that they should remember this and not treat workmen suffering with backaches as malingerers or as though they are shamming. Unfortunately, a number of individuals with long, slender bodies will take up occupations where considerable lifting is required. Also individuals, slender or heavy, often use their bodies at a mechanical disadvantage while working. The trouble, in the majority of cases, occurs about the joints in the lower back . . . ."

Finally, the ultimate intent of industrial medicine and surgery should be a closely knit, unified system which will eliminate waste in time, effort, and money, which will contribute to the general good of industry as a whole by restoring the worker as quickly and completely as possible to

his former usefulness, and which will tend to harmony and reciprocal good-will between employer and employed.

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ORIGINAL ARTICLES

A CASE OF CHRONIC NEPHRITIS MAINTAINED FOR SIX MONTHS ON AN AVERAGE DAILY PROTEIN INTAKE OF 0.26 GRAMS PER KILOGRAM OF BODY WEIGHT

BY MILLARD SMITH, M.D.*

THIS case is reported in order to illustrate the application of the principles which have been discussed in a previous paper[1], and to show that very low protein diets may be utilized for long periods of time.

An Irish boy of 17 years entered the Fourth Medical Service of The Boston City Hospital, December 19, 1922, on the advice of his family physician, who had been treating the patient since the appearance of a convulsion eleven weeks previous to admission. A second convulsion appeared six days before admission. Family history irrelevant. As a child he had measles, parotitis, pertussis and several attacks of tonsillitis followed by tonsillectomy at the age of five years. His weight was 130, 140, 150 and 123 pounds, one year, seven months, and four months previous, and at admission, respectively. The present illness shows an insidious onset, but probably begins during the summer of 1919, when he had frequent tonic cramps in the calves of his legs and thighs. During October, 1920, he had a severe attack of tonsillitis. He noticed that during the same school year he could not concentrate on his studies at night, and in the spring of 1921 his memory became capricious. In October, 1921, another severe attack of tonsillitis developed, and in February, 1922, he noticed that his stomach was becoming irritable, especially after exercise. He saw bright specks before his eyes beginning in June, 1922. He had considered himself quite well until June, 1922, and had indulged actively in high school athletics. At this time the irritability of his stomach became sufficient to cause frequent vomiting, which was preceded by only slight nausea, and usually came immediately after eating. Soon after this, he noticed that his face was filling out, but neither he nor his parents recognized that as edema. During the summer the edema increased, and one morning in the latter part of September, he awoke feeling very weak and having a severe frontal headache. He remained in bed all day, and at 11:00 p. m., while asleep, had a convulsion and did not regain consciousness for one and one-half hours. The next morning his physician was called and found that his blood pressure was high, and the urine contained albumin and casts. A Carrell diet and frequent adminstration of magnesium sulphate were prescribed. The edema subsided and no more convulsions appeared until six days before admission. Frequent blood pressure observations showed that this remained high. The last convulsion occurred in the morning shortly after rising and was attributed by the patient to some cheese which he had eaten the evening before. There were no prodromal sensations whatsoever, and he was unconscious for one and one-half hours.

Physical examination disclosed a well developed and nourished but weak young man, mentally alert and in no distress. His face was slightly edematous but there was no evidence of edema in any other part. The skin was of sallow color, but normal in texture. Pelvis and line of pubic hair were feminine in type. Conjunctivae were pale, and ophthalmoscopic examination negative. Tonsils had been only partially removed, contained many crypts and showed chronic injection. Left border of heart was 13 cm. to left of midsternal line in the fifth intercostal space; no abnormalities in rate and rhythm, but a blowing, functional systolic murmur was heard over the entire precordium. Blood pressure was 195/95. Other physical findings were essentially normal.

Upon admission the patient's twenty-four hour urine specimen was acid to litmus, of normal color, specific gravity 1.010, did not reduce Benedict's solution, but showed a large trace of albumin. It contained 6.2 grams of non-protein nitrogen and 0.25 grams of albumin. The centrifuged sediment showed two to four red blood and ten to twenty white blood cells per high power field, with numerous hyaline and brown granular casts. Phenolsulphonephthalein

*From The Fourth Medical Service and Thorndike Memorial Laboratory, Boston City Hospital.

excretion amounted to 5.0 per cent with a 180 cc. urine volume in two hours and ten minutes. Blood findings were as follows:

Fasting Blood	*Whole Blood*	*Plasma*
Total protein		7.1 per cent.
Non-protein nitrogen	174	173 mgs. per 100 cc.
Uric acid	6	7 " " " "
Sodium chloride		656 " " " "
Sugar	108	110 " " " "
Total volume (vital red)	3235	2721 cc.
Red blood cell count	1,640,000	
White blood cell count	10,000	
Hemoglobin (Sahli)		36 per cent.
Reticulocytes		5.0 per cent.

Smear of the blood shows rare normoblasts, no achromia, moderate polychromatophilia and anisocytosis, no poilkilocytosis. Platelets abundant.

The usual 40 gram-protein-low salt diet, with about 1800 to 2000 calories was prescribed, and he remained upon this for eighteen days. In this time the plasma non-protein nitrogen dropped only 8 milligrams. His clinical condition remained the same, and he stayed most of the time in bed, although he was not so confined by order. From the fifth of January, 1923, a nitrogen free diet of 3000 calories was given for six days, at the end of which time he was unable to continue longer owing to nausea. After this, for sixty days, he had alternate days of a 20 gram protein, 3000 calory diet, with protein free days in between. During this time the plasma non-protein nitrogen dropped from 166 mgs. to 66 mgs. per 100 cc. and the urine non-protein nitrogen excretion dropped from 6.2 to 2.13 grams in twenty-four hours. The character of the urine sediment remained unchanged. His blood pressure rose gradually to 250/150. During this period he was transfused three times by the Kimpton method, receiving in all 1700 cc. of whole blood, and was also given 50 cc. of blood intramuscularly three times. The erythrocyte count at the end of the period was 2,212,000. Several fresh petechial hemorrhagic areas developed in the fundi of the eyes. Physically he felt much stronger and was running about the ward helping the nurses carry trays. His average daily protein intake for this period of sixty-six days was 9.4 grams or 0.17 grams per kilogram of body weight. There was no question but that he was stronger and in better clinical condition than on admission. From this time, for a few days, the diet was increased to 20 grams of protein daily, but the non-protein nitrogen of the plasma rose to 79 mgs. and he was then given alternate protein free and 15 gram protein days until his discharge, May 5, 1923, when his plasma non-protein nitrogen was 75 mgs. The discharge diet contained 15 grams of protein and 3000 calories.

After discharge from the hospital, he spent two months at home and was seen at weekly intervals. Aliquot samples of his daily twenty-four hour urine excretion were made, and each week this specimen was analyzed for total non-protein nitrogen and sodium chloride. There can be no doubt as to his faithfulness to the prescribed diet. Blood samples were taken at irregular intervals for cell counts and chemical examination. While at home, he spent most of the time out of doors and walked about visiting his friends. Except for the anaemic appearance he appeared in good health.

June 9th, 1923, he was seen by Dr. Charles T. Porter, who stated that the right tonsil was only partially removed and the left one was intact and filled with a cheesy exudate. It was decided to perform a tonsillectomy under local anesthesia. The blood clotting time was found to be 22 minutes by the macro method. Over the course of three days he received 300 grains of calcium lactate, and on the morning of the fourth day the clotting time was four minutes. There was practically no bleeding during or following the tonsillectomy and he made a very rapid recovery, being discharged to his home four days after the operation, feeling as strong as before. Culture of the tonsils gave a yield of Streptococcus hemolyticus and Staphylococcus aureus. It is of interest to mention that the calcium lactate ingestion was followed by considerable diuresis.

June 30th, the following note was made, "has been feeling very well since the tonsillectomy but not quite so strong and has been troubled with a rather irritating cough at night. B.P. 220/130." The blood non-protein nitrogen on this day had risen to 81 mgs. From this date to July 9th, when he was again admitted to the hospital, he experienced increasing distress from the nocturnal cough and a choking sensation with difficulty in breathing. He became frightened at the idea that he was in danger of having pneumonia. It was for this reason that he sought readmission to the hospital.

The important physical findings were as follows: Ophthalmoscopic examination showed both discs grey, the margins distinct, and the vessels without evidence of sclerosis; in the left retina there were several small dark red hemorrhages along the two superior vessels just above the disc; in the inferior nasal portion of the right retina there were several dark brown spots. Lungs clear. Heart: left border of dullness 12 cm. from mid sternal line in fifth space, rate 100, systolic murmur at apex and presystolic gallop rhythm. B.P. 225/130. Knee jerks absent.

The urine excretion in the twenty-four hours after admission was 740 cc., and on examination was pale and clear, acid, specific gravity 1.008. It contained a trace of albumin, no sugar, 1.70 grams of non-protein nitrogen, and 2.16 grams of sodium chloride. The sediment contained frequent hyaline casts, rare red blood cells, and occasional white blood cells. Erythrocyte count was 1,648,000, leucocyte count 8,600, and there were 2.25 grams of hemoglobin per 100 cc. of blood. Reticulocytes averaged 1.1 per cent. Plasma non-protein nitrogen was 114 mgs. per 100 cc., and plasma sodium chloride 666 mgs. per 100 cc.

With the administration of digitalis and codeine the cough disappeared, and he slept well. There were no indications of impending uraemic symptoms excepting that the non-protein nitrogen of the blood was steadily rising in spite of a low protein intake. Greatest concern was held for his cardiac condition which was embarrassed by a high blood pressure. It was hoped that lowering the plasma chloride might be followed by a drop in the blood pressure. In order to accomplish this, a stomach tube was passed, July 14th, and 50 cc. of 5 per cent glucose were injected and withdrawn at ten minute intervals. The washings contained only 2.0 grams of sodium chloride. The next day he had a severe headache and in general felt badly. A magnesium sulphate enema relieved his headache, and he brightened up considerably. On July 17th, his stomach became irritable and he vomited several times. This continued at intervals until his death. July 23rd, 600 cc. of whole blood were given by the Kimpton method but there was no improvement in his symptoms. On July 31st, edema of the face and hands developed, accompanied by headache. On August 5th, a convulsion appeared in the morning lasting five minutes. Convulsions reappeared at varying intervals until August 15th, when he became delirious, and beginning on the 18th, they were very frequent until his death on the 20th. Two days before death the plasma non-protein nitrogen was 149 mgs., uric acid 20 mgs., sodium chloride 450 mgs., carbon dioxide combining power 66.9 volumes per cent, and total protein 6.8 per cent. At death the spinal fluid had a non-protein nitrogen of 137 mgs., uric acid 3.4 mgs., sodium chloride 748 mgs., and carbondioxide combining power of 50.4 volumes per cent.

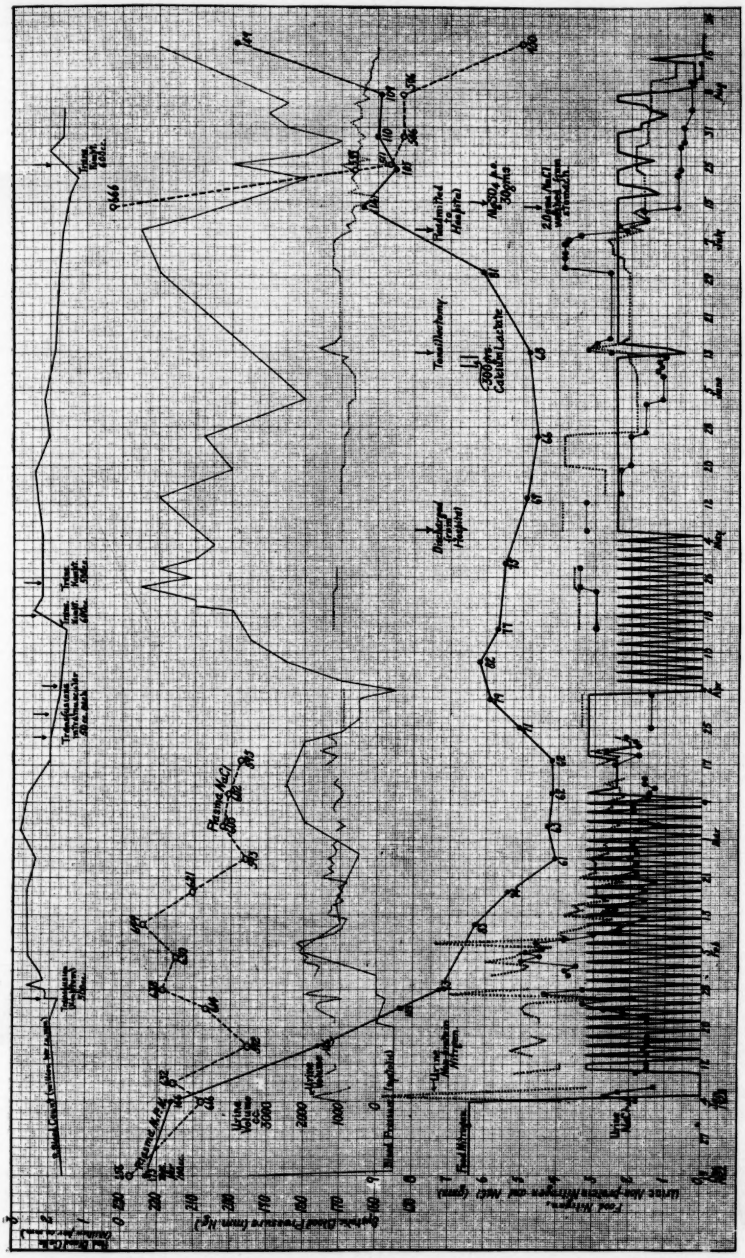

CHART I

DATE	PLASMA								WHOLE BLOOD				BLOOD COUNTS	
	Non-Protein Nitrogen	Urea Nitrogen	Uric Acid	NaCl	Total Protein	CO_2 Combining Power	Inorganic Phosphate	Sugar	Non-Protein Nitrogen	Uric Acid	Sugar	Total Fat	R.B.C. Million per cu.mm.	W.B.C. per cu.mm.
1922	mgs.	mgs.	mgs.	mgs.	per-cent	vol. per cent	mgs. P.	mgs.	mgs.	mgs.	mgs.	per-cent.		
Dec. 19	173		7.1	656				110	174	6.0	108		1.6	0.010
31	168		6.7	616					164	5.8		0.65		
1923 Jan. 8	142		6.6	632										
16	126		8.3	592	7.1									
21													2.0	
22	103		7.6	614		38.7			112	6.1				
23													1.8	
26	102		7.7	638									1.8	0.009
27													2.1	
28	93	64	7.5	635	6.5								2.2	
29													2.6	0.010
Feb. 1													2.3	
4	90	63	6.2	630									2.6	
11	83	54	8.0	649									2.6	
18	74	50	8.9	621									2.7	
25	61	33	6.6	593									3.4	
Mar. 4	63	30	5.2	605									2.8	
11	62	31	6.4	602									2.6	
18	62		6.5	595									3.1	
23													3.1	0.012
25	71												1.9	0.007
31	73													
Apr. 1													1.7	0.016
8	82						16.3						1.7	0.007
15	77												1.6	
19													2.5	
22													2.2	
29	75													
May 5													2.3	
13													2.4	
19													2.4	
26	68		6.1										2.1	
June 3													2.2	
13	68												1.8	
14													1.9	
30	81		6.8										1.7	
July 9													1.6	0.009
14	114			666										
17													1.5	0.011
20													1.2	
22	105		9.6	533		32.4								
23	108			530										
	104			511	(after transfusion)									
26													2.1	
29	110		8.8	506		44.7 (Na_2CO_3 given by mouth)							1.7	
Aug. 4													1.6	0.009
7	109			508		52.3								
18	149		20.0	450	6.8	56.9								

TABLE I

In Chart 1 and Table 1 are given the complete data since first admission to the hospital. The abstracted autopsy report of the pathological laboratory follows: No free fluid in peritoneal or pleural cavities. Pericardial cavity contains 3000 cc. of clear, straw colored fluid; no adhesions. Heart weighs 440 grams, epicardium contains a slight amount of fat, myocardium reddish brown, smooth and homogenous. No gross evidence of scarring. Left ventricle shows marked hypertrophy; the right, dilatation. Valves and coronary arteries negative. Lungs both greenish gray, light, elastic, voluminous and crackle beneath the finger. On section each shows a smooth, reddish gray, moist, cut surface

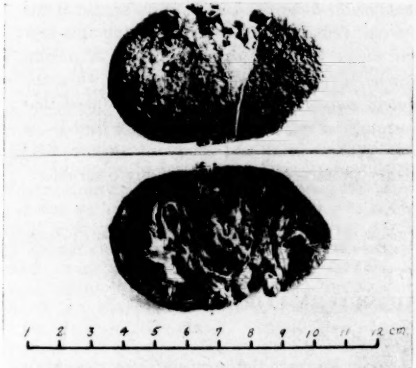

FIGURE I.

with yellowish fluid exuding from the bronchi. Pulmonary artery and branches negative. Spleen weighs 135 grams, is bluish gray, firm, and cuts with resistance. On section the cut surface is brick red, soft, and shows normal trabeculation. Malphigian corpuscles invisible. Liver weighs 1260 grams, reddish brown, smooth, firm and solid. On section the cut surface is smooth, red-brown, and homogenous, lobulation distinct, no evidence of necrosis. Adrenals normal. *Kidneys together weigh 61 grams.* One organ measures 8.0 x 4.0 x 1.5 cm., the other 7.0 x 3.5 x 2.0 cm. On section each showed a dull, pale, gray, granular surface with absence of regular vessel markings. Pyramids are few and small. Cortex measures 0.5 cm. and less in places. It is markedly scarred. Capsules strip with difficulty disclosing a granular cortical surface. Pelvis negative. Duodenal mucosa is injected but otherwise negative. Aorta smooth. Brain weighs 1220 grams, dura not adherent to calvarium but quite firmly attached to meninges. Slight cloudiness of the pia-arachnoid. Abundance of cerebro-spinal fluid. There is edema of the brain and flattening of the cerebral cortex. *Anatomical Diagnoses:* Chronic Nephritis, Hypertrophy of Left Ventricle of Heart, Dilatation of Right Ventricle of Heart, Edema and Congestion of Lungs, Spleen and Brain.

Through the kindness of Dr. Frank B. Mallory, the following microscopic examination and notes are given:

"The small arterioles of the pancreas, liver and spleen show hyalinazation; a terminal process. The spleen shows areas of pigmentation, and the liver terminal, early, central necrosis. Heart muscle is normal. The kidney presents the picture of chronic glomerulonephritis typical of that found with toxic destruction, as in scarlet fever. About one-half of the glomeruli are entirely destroyed and the other half are badly damaged. The latter half show all stages of intracapillary inflammatory changes, some of the stages being quite recent (a matter of four to six weeks). The tubules show postmortem changes but there are many that are bound down by fibrosis and show evidences of marked degeneration. There is a large amount of fibrosis throughout the kidney substance. Some of the glomerular changes are of many months duration and the gross specimen gives evidence of a nephritis of two to three years' duration." Figure 1 shows the actual size and appearance of one of the kidneys.

DISCUSSION

The case is important because of the prolonged protein intake considerably below the commonly accepted minimum protein requirement standard, while the energy and food accessory requirements are satisfied in full. Table II gives the nitrogen exchange by periods. Considering the urine nitrogen excretion alone, the nitrogen balance shows a tremendous loss of nitrogen. If the stool nitrogen and urine albumin nitrogen losses, conservatively estimated, are added, it is probable that the patient lost, without replacement, a total of 420 grams of nitrogen from the body during the period January 5, 1922—July 15, 1923 (192 days). This is equivalent to 2625 grams of protein, or approximately 26 per cent of the protein content of the patient's body. How was the patient affected thereby? First, he lost no body weight. His general appearance improved, as may be seen in the photographs, one taken in June, 1922, and the other May 13, 1923. His strength improved markedly after relief of nitrogen retention, and this was maintained until his renal function decreased again to the point where nitrogen retention ensued despite the low protein intake. The plasma protein concentration did not decrease significantly. There was no evidence of edema at any time until after this period, and then it can be accounted for on the basis of progressive renal damage and cardiac failure due to renal complications.

TABLE II

Dates	Number of days	Food Nitrogen, Total gms.	Urine Nitrogen, Total gms.	Balance, gms.
Jan. 5–Feb. 7	34	48.0	167.6	—119.6
Feb. 8–Mar. 18	39	112.0	109.6	+ 2.4
Mar. 19–Apr. 1	14	44.8	42.0	+ 2.8
Apr. 2–May 5	34	38.4	119.6	— 81.2
May 6–June 13	39	93.6	107.6	— 14.0
June 14–July 15	32	72.3	89.2	+ 16.9

During the period from February 25th to March 14th, the patient approached nitrogen equilibrium on 0.34 grams of protein per kilogram of body weight. Nitrogen retention appeared after this period with an increase of the

June, 1922 May, 1923.

FIGURE 2.

protein intake to 0.37 grams per kilogram of body weight. This retention was again relieved by decreasing the protein intake to 0.14 grams per kilogram of body weight.

Upon admission, only one twenty-four hour sample of urine was analyzed for total non-protein nitrogen; this was 6.2 grams, an equivalent of 38.8 grams of protein. The patient remained on a 40 gram protein diet, and it may be seen from Chart I that the relief of nitrogen retention was insignificant. Whether or not the patient would have lived as long as he did if his diet had remained the same as during this first two weeks is problematical, but it is certain that he showed marked improvement when the protein content of his diet was so reduced that the nitrogen retention was rapidly relieved. A more general trial and study of such radical dietary protein restriction is highly desirable.

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SURGICAL INSTRUMENTS DESIGNED BY LORD LISTER*

BY C. J. S. THOMPSON, M.B.E.

At this first centenary of the birth of Lord Lister, whose discoveries marked one of the greatest epochs in the history of surgery, it is fitting we should pay our tribute to one whose name is beloved and revered, not only in the country of his birth, but throughout the world. Much has been written concerning his life, his achievements and various phases of his great work, which affected and influenced nearly every department of medicine, but little has been recorded of the character of the instruments he designed as a surgeon, and the manner in which he used them.

The large number of instruments embodied in the "Lister Collection," now in the possession of the Royal College of Surgeons of England, was presented to the Museum in 1912, by Sir Rickman J. Godlee, Bart., Lister's nephew and biographer, and include specimens of those he designed or modified, together with others in his possession at the time of his death, which were chiefly bequeathed to him by his father-in-law, James Syme, the great Scottish surgeon (Figure Ia).

To the surgeon the instrument is the means by which he is enabled to utilize his knowledge and exercise his skill for the benefit of humanity. An inanimate object truly, but, like the sculptor's chisel, by means of which the block of marble is transformed into human form, or the brush of the artist, which enables him to interpret his art, the surgeon's instrument is the indispensable medium, without which his work could not be accomplished. It is there-

FIGURE I-A. Case containing part of the Lister Collection of Surgical Instruments and MSS. at the Royal College of Surgeons, London.

*Presented at the annual meeting of the Boston Medical History Club, April 29, 1927, by Dr. J. W. Courtney, Boston.

fore natural that the surgeon should endeavour to conceive and design an instrument that will lend itself best to the accomplishment of his desire and skill. Thus we find from the XVIII Century the names of great operators have become associated with the special instruments they have devised and used.

From his boyhood, Lister showed remarkable manipulative dexterity and delighted in natural history, and in setting up the skeletons of small birds and reptiles. He had a joy in the work of his hands which served him well in after life.

As a surgeon, the instruments he designed are of peculiar interest, showing, as they do, the thought and ingenuity which characterized his work. He devised new operations and improved others. He was a rapid operator, thorough in his methods, and was the first to suture blood vessels, and to do an osteotomy for knock-knee.

It is the instruments he designed or improved that I propose to describe, as they are especially interesting on account of their intimate association with his work, and also owing to notes that have been added in his own words.

In his earlier years he devoted much study and attention to the perfecting of an abdominal tourniquet, as he believed that, until about 1860, no thoroughly efficient instrument had been designed. He states: "In all cases of amputation of the hip-joint, great advantage will be derived from the use of the Aortic Tourniquet, an instrument first used for this purpose by Professor Pancoast of Philadelphia in 1860. In the form suggested by myself, in which alone I have seen it, the instrument consists of a bar of steel bent in a nearly semi-circular form to embrace the side of the body, with one end expanded and covered with soft material for application to the back. The other end receives a screw, which presses down a pad somewhat broader than the diameter of the aorta; its object being to compress the artery as it lies on the body of the fourth lumbar vertebra, without obstructing more than necessary the return flow through the vena cava."

In Lister's article on "Amputation" in Holmes' "System of Surgery," 2nd edition, 1871, Vol. V, p. 652, he found he had been anticipated by Professor Pancoast and writes—"The aortic tourniquet was alluded to as if originating with myself. It was only comparatively recently that I became aware that I had been anticipated by Professor Pancoast." He then quotes from an article by Thos. E. Morton, M.D., in the *American Journal of Medical Science*, 1866, Vol. 52, p. 21, where is figured the instrument used for the first time by Professor Joseph Pancoast in his case, in June, 1860.

The first (Figure I) abdominal tourniquet designed by Lister consisted of a semi-circular flat bar of steel, its distal ends being apart, so as to enable it to be passed round the patient's loins. The upper extremity terminates in a ball with a hole in it and a screw passing through, which is a cylindrical steel rod. At the upper extremity of the rod is a flat oval thumb piece and at the lower a steel disc, affixed to which is a convex pad covered with chamois leather for pressing on the aorta. The lower end of the bar has a brass tube which revolves round it. A hinged brass plate is affixed to this tube and is attached by screws to an oval steel plate, bearing a pad made for counter pressure on the loins, which can move freely on its long or short axis.

"I have found it advantageous," says Lister, "to interpose a small round sponge between the

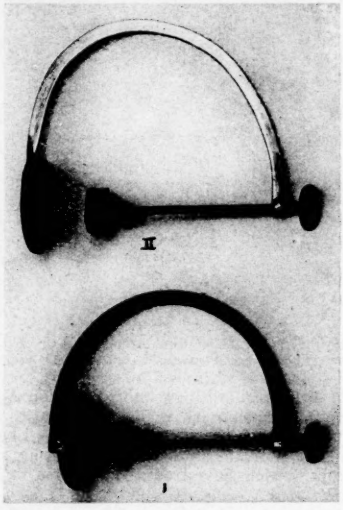


FIGURE I. Lister's Abdominal Tourniquet, Type I.
FIGURE II. Lister's Abdominal Tourniquet, Type II.

anterior pad and the abdomen, as it accommodates itself well to the parts to be compressed. While the pad is being screwed down, an assistant, with his finger on the femoral artery at the groin, marks the time when the pulsation ceases."

In practice, Lister seems to have found the body-bar too short for his patient, and also that the ball-and-socket joint was placed on the wrong pad, for in the second pattern (Figure II) he tried, we find that the lumbar pad is firmly fixed on a fenestrated base, and the free movement of the ball-and-socket joint is transferred to the aortic pad, while the body-bar is also made larger.

Even with this improvement he was not satisfied, and again designed a third model (Figure III) in which the lumbar pad is placed trans-

versely to the bar, which was a great advantage to the surgeon.

With characteristic thoroughness he made a still further improvement in a fourth model (Figure IV), which may be regarded as his finished and perfected instrument. This is furnished with a firm large transverse lumbar

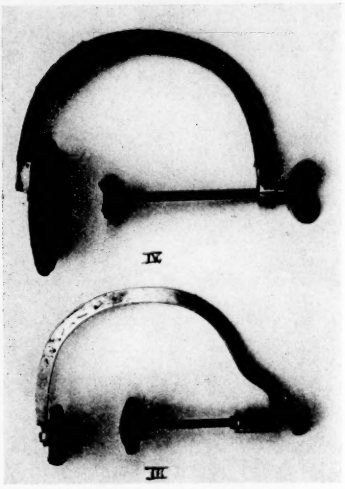


FIGURE III. Lister's Abdominal Tourniquet, Type III.
FIGURE IV. Lister's Abdominal Tourniquet, Type IV.

and aorta pad with a limited motion which made it stronger.

Probably no instrument bearing Lister's name is better known to surgeons than his sinus forceps, which he introduced in 1875. (Figure V.)

He first described it in connection with the surgical treatment of chronic bursitis patellae, by incision and drainage. He states, in a paper "On Recent Improvements in the Details of Antiseptic Surgery"—(*Lancet,* Vol. I, 1875, p. 468, and "Collected Works," Vol. 11, pp. 21-2, with drawings)—"The narrow drainage tube may be readily inserted by means of a simple modification of the dressing forceps introduced by myself, several years ago, but hitherto unpublished. The blades, which are straight, are ground down to the size of a probe at their extremities, so that they can be passed into a very small orifice. This instrument, which goes by the name of sinus forceps, will be found very useful for extracting small exfoliations and for various other purposes."

The total length of Lister's own pair is 6 in., the blades being 2 in. long, very slender, with blunt points. They have fine transverse grooves on their opposing inner surfaces and ring-handles like scissors. When the handles are closed, the shanks do not touch; only the grooved extremities of the blades come in contact. Lister used to show that a properly constructed pair of these forceps would pick fluff out of the smallest keys on his ring.

He then turned his attention to an urethral forceps for extracting calculi from the prostate. (Figure VI.) The first type he devised was 11 inches long, the blades forming a thin oval ring by their fenestrae, 3/8 of an inch long, by 1/4 inch in transverse diameter. The fenestration of the blades is the chief feature. Sir Rickman Godlee states in a note—"This is the first pair of urethral forceps of this shape Lister devised. He was much pleased with them and wished me to possess them."

He later improved them by eliminating the fenestration, and in the final type, the shanks are rather slender, the blades only 3/4 inch long and 1/4 inch wide, and the inner surface concave and smooth. The shanks between the blades and the lock where they make the curve are slender and rounded, while above the lock they gradually become stouter and flatter up to their blocks. They have a simple screw or scissor-lock. There is a block on each shank within an inch of the ring-handle, but none near

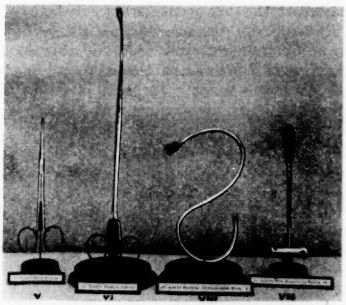


FIGURE V. Lister's Sinus Forceps.
FIGURE VI. Lister's Urethral Forceps.
FIGURE VII. Lister's Wire Hammer.
FIGURE VIII. Lister's Retractor for Supra-pubic Work.

the lock. The shanks, about 1/4 inch apart, where they spring from the rings, lie almost together at the blocks when the handles are firmly closed. Thus, when the calculus in the prostate is grasped by the open blades, the part of the shanks which lies in the bulbous urethra takes up a much smaller space than it occupies when the blades are closed. This arrangement was designed by Lister himself, for the extraction of calculi in the prostatic urethra, and, says Godlee, "he was justly proud of it—this was no mere surgical toy."

Lister was always an admirer of the ingenuity and skill of the surgeons of America, and

when Bigelow visited London and gave demonstrations of lithopaxy at the house of the Royal Medical and Chirurgical Society, then in Berners Street, Lister was struck by the lithrotrite he used, and had one made exactly like it, by Weiss. This instrument he frequently used and it was afterwards employed by Cheyne and Godlee.

Lister's litrotrite weighs 13¾ ozs. and is 17 inches long: the handle and cap 4 inches, the metal handle 1¼ inches in diameter and the length of blade 2⅛ inches, calibre, English scale, No. 20.

In Lister's address on "The Treatment of Fracture of the Patella," (*Brit. Med. Jour.*, Vol. II, 1883, p. 855) he alludes to a wire hammer that he devised. (Figure VII.) In the case of ununited fracture of the oleeranon, he pared the broken surfaces, "using a chisel and hammer for the purpose, and having drilled the fragments with a common bradawl." He says, "In this case, however, I did not leave the ends of the wire projecting from the wound, but having given them one complete twist (or two half-twists), cut the ends off short, and hammered the twisted part down flat upon the bone with this small hammer." Union became perfect. It was especially in fracture of the patella that Lister found the "hammering down of the twist" was "in every respect an advantage."

The hammer is all of steel and weighs 2 ozs. The width of head is 1⅝ inches and the diameter of the ends, which are expanded, quite flat and circular, about ½ inch, one end being a little wider than the other. The length of the handle is 5½ inches. It is cylindrical except for two inches at the free end, where it is flat and roughened on both sides.

Shortly before he retired from practise, Lister tried a new method of dealing with fractures of the patella of long standing. He states—"In drawing down the upper fragment I found a great advantage from the use of a very strong, sharp hook, the point of which was inserted in the tendon of the quadriceps at its attachment. By this means I was able to exert much greater traction upon the bone than can be done by simply pulling on the wire, and in order to relax the quadriceps as much as possible, the limb was placed in the vertical position before the fragment was pulled down."

In the sharp hook he devised, the handle, shank and hook are continuous and are 9½ inches long. The hook is bent slightly backward on the stem; it is stout and makes a wide curve, the point being very sharp and not bent inwards. The handle is feathered so as to be widest at its free end.

Lister employed steel pegs for ununited or badly united fractures. These pegs were four-sided and a set of six consisted of two, 7½ inches long, three, 5½ inches, and one 2½ inches in length. They are very stout, the points being blunt, and the heads form a transverse projection of about 3/8 inch in breadth. When using, a round hole of suitable size was bored and the square peg driven into it. He found it easier of introduction than a round peg which would be a little larger than the drill. It held the opposite fragments firmly together and the spaces on every side of the peg allowed the blood and serum to escape from the bone. The head of the peg was allowed to project from the dressings and it was removed when the union seemed satisfactory.

Lister objected to the blunt end of a hernia knife being long as, in dividing the neck of a hernia, a piece of the wall of the intestine might be invaginated and wounded. He therefore devised a bistoury for hernia and fistula, the total length of which was 7 inches. The metal is hollowed so that the back is relatively broader for 1½ inches from the extremity, which is blunt but very narrow.

He did a great deal to revive supra-pubic lithotomy, although he often performed the lateral operation, and devised three types of retractors for supra-pubic work.

The first (Figure VIII) is an S-shaped piece of steel, 6¼ inches in vertical measurement and 1/8 inch thick. The smaller curve, which was to be held by the operator's hand, is slightly dilated at its free end and convex, being obliquely truncated. The larger curve ends in a socket bearing a piece of oblong soft wood, the upper surface of which is bevelled.

Among the Lister collection are eleven scalpels made about 1865, which he employed for general purposes in operative surgery. Most surgeons have their favourite shape of blade and Lister preferred a narrow one. They all have ebony handles with convex sides and free ends flattened and widened, and are about 5½ inches long. The blades are all narrow and the edge is never highly concave. The back is broad at the handle, turning slightly downward, especially at the point. In none is the back distinctly shouldered or bevelled, and they are very similar in pattern to those used by Sir William Fergusson, but for the latter distinction.

For amputating, Lister employed Robert Liston's amputation knives, which are well-known to have long, straight, slender blades, but slightly bowed and narrowing near the point. The largest blade of his set measures 9¾ inches and the breadth near the handle 3/4 inch. The smallest blade is 6½ inches and 1/2 inch in breadth near the handle.

Lister, like Sir Benjamin Brodie, preferred rigid metallic instruments to flexible bougies, and so devised his dilating sounds, which he preferred to a catheter for gradual dilation of strictures. They are rounded at the point and the stem, and lightly constricted beneath it.

The cleft palate needles designed by Lister

were somewhat like Smith's but with a smaller cutting part. They are 5 inches long, curved and bent laterally at right angles to the stem, which is about 1 inch, and are mounted on ebony handles.

No account of the instruments devised by Lister would be complete without mentioning his famous spray apparatus. The first primitive type, (Figure IX) or donkey engine, he em-

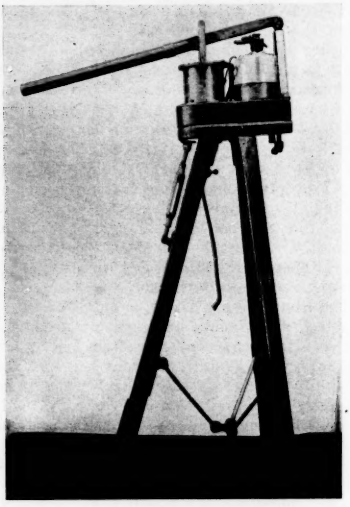


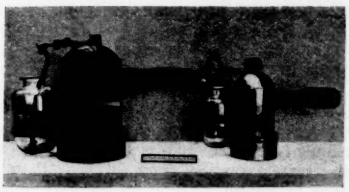
FIGURE IX. Lister's First Spray Apparatus, or the Donkey-Engine.

ployed in the operating theatre of the Edinburgh Royal Infirmary, before the steam apparatus came into use. He exhibited and described it at the Meeting of the British Medical Association in Plymouth, in 1871. It consists of a stout wood tripod stand, the legs of which are about 3 feet long. On the top of it is a tray, holding a glass vessel for the solution and alongside of it a brass pump, worked with a long handle, to produce the spray, which was conveyed by a pipe and rubber tube.

He had previously employed a Richardson's ether spray for antiseptic opening of a poisonous abscess, but he says—

"Though such a spray producer is perfectly efficacious for a small operation, it does not make a cloud of sufficient volume for a large one, such as an amputation of the thigh or at the hip-joint. Therefore, with the object of securing the same result in such cases, I have had this apparatus prepared, which I confess is in a heavy and cumbrous form; but I hope it will be improved in that respect before long. Meanwhile, it is much better than nothing. Let me say a word or two in the first place as to the principle on which it is constructed. It appears that the best kind of spray which can be produced is that which is formed on the principle of the atmospheric odorator, by having one tube set at right angles to another, the air-tube being larger than the water-tube, and the opening of the water-tube being exactly opposite the middle of the orifice of the air-tube. This makes the finest and best of all sprays. But, with a heavy apparatus like this, it would never do to have to move it about along with the nozzle, as it is absolutely necessary in the instruments of ordinary constructed on this principle. We must have tubes to convey the air and water to a considerable distance; and this is very easily done by not merely having the liquid ejected by the force of the air blown over the orifice of the water-tube, but by having it driven through the tube by the force of the same pump that propels the air, the quantity of the water being regulated by a stop-cock. Then it is necessary to provide some means of clearing the fine end of the water-tube, in case of its obstruction by particles of dust. This is done by having the water-tube straight for a short distance from the nozzle and then bent at a right angle, with a little milled cap to screw on at the angle, so that, in case of obstruction the cap is screwed off, and the orifice of the water-tube is cleared at once with a needle or a bit of fine wire."

This simple appliance was followed by the well-known and more portable antiseptic steam spray, by means of which the spray was projected by steam pressure. Of this apparatus there are several types, each being smaller and more handy. (Figures X and XI.)



FIGURES X and XI. Later types of Lister's Antiseptic Steam Sprays.

Lister was a pioneer in many fields, including histology, physiology and bacteriology, and one of his followers has said, "He changed surgery, especially operative surgery, from being a hazardous lottery, into a safe and soundly based science."

In 1867 he performed the first recorded surgical operation for cancer of the breast, with division of the pectoral muscles and dissection of the axilla. He practised bloodless surgery several years before the Esmarch bandage came into use, and his introduction and perfection

of the catgut ligature was in itself an epoch in surgery.

Let me conclude this brief account of the instrument, designed by Lister, with the charming pen-portrait of him that has been given us by Professor John Stewart, who was one of his dressers at the Edinburgh Infirmary and, subsequently, in 1878, his house-surgeon in King's College Hospital, London. Alluding to Lister's days in the old Edinburgh Infirmary, he says—

"It is the Old Reserve Ward, a large ward for men, and about two o'clock on a summer afternoon. Clerks and dressers and some students from other clinics are standing about, chatting together, or talking to the patients. The instrument clerk, in charge of the famous spray, is seated on the broad window sill at one end of the ward, now examining the flame of the spirit lamp, or touching the safety lever to let steam escape, for the spray must be kept ready for instant use, and now looking across the smoky roofs of the old town, where his eyes rest on the blue gleam of the Forth. 'North Berwick Law with cone of green, and Bass amid the waters.' Then someone suddenly says—'Here comes the chief!' and we see our hero come through the little side-gate, down the slope, with his rapid, easy stride, a light cane in his hand, and on his handsome face a look of happy meditation. The house-surgeon meets him at the main door, and a few minutes later they enter the ward. Students come to attention, patients' faces beam. I wonder if there were anywhere else in the WORLD, a surgeon whose pupils held him in more reverent admiration, whose patients so trusted him, loved and positively adored him. He cannot be unconscious of this feeling; the 'soft lines of tranquil thought' grow softer, that 'face at once benign and proud and shy' is suffused with the unaffected pleasure of this modest and simple-minded great man, as he begins his tour of the ward. It was his wish on Sunday to see every patient in his wards, and as we often had sixty or seventy, this meant a visit of three or four hours. He goes from bed to bed, occasionally conversing with a patient, or discussing a case with the house-surgeon, and perhaps himself changes a dressing, drawing the attention of the dressers and students to clinical facts, but never using a word to alarm or distress the patient, and performing his manipulations with the gentlest, firmest, steadiest hand which any sufferer could dream possible."

"And so through all the men's wards, then downstairs to the women and children. How their eyes followed him! And perhaps the visit ended in that famous little ward at the back, a room really meant for one bed and one patient, but in which there were two big beds; in one lay or sat, looking at picture books or playing games, three small boys, Tommy Miller, Roden Shields and Willie Shotts, all 'chronics,' spines and joints, doomed to early death or at least deformity and lameness but for him, and all happy and recovering.

"And in the other bed the tall, gaunt, russet-bearded figure of Henley, the poet, who lay there with a saved limb, musing and framing his 'Sketches in a Northern Hospital.'"

No truer picture of the great surgeon and discoverer of antiseptic surgery could be drawn than this, or one more worthy to perpetuate his memory.

Thanks are due to Sir Arthur Keith, F.R.S., Conservator of the Museum of the Royal College of Surgeons, London, for kindly supplying the photographs to illustrate this paper.

CHOICE OF TREATMENT IN CONGENITAL PYLORIC STENOSIS*

BY JOSEPH GARLAND, M.D.

THE treatment of true congenital hypertrophic stenosis of the pylorus in infancy has of late years become somewhat of a debatable question, the advocates of the two methods—surgical and medical—being divided into two rather distinct groups. In some instances where excellent results have been reported by medical treatment, the question may well be raised as to the accuracy of diagnosis, for pyloric spasm has diagnostic points similar to those of true stenosis, and in some cases the differential diagnosis between severe spasm and mild stenosis may be confusing. Spasm of the pylorus may be considered as one symptom of the hypertonic, nervous infant. The vomiting is not so persistent as in stenosis; food passes the pylorus and its passage is indicated by the stools; peristalsis is less frequently seen, and a true tumor is rarely, if ever, felt.

Wellin[1], in fact, has expressed the opinion that stenosis is primarily spasm and secondarily hypertrophy, basing his claim on a case in which the clinical picture and the roentgen-ray examination were those of stenosis, but in which a healthy pyloric muscle was found on operation. Stenosis, moreover, may exist in greater or less degree, and even Davison[2], who has treated with success a series of cases by medical methods, recommends operation in those with unmistakable signs of complete pyloric obstruction.

Sauer[3], in his monographic review of the subject, calls attention to the fact that breast-fed babies are most subject to pyloric stenosis, and

*From the Children's Medical Department of the Massachusetts General Hospital and the Department of Pediatrics of the Harvard Medical School.

lists the three theories as to the causation of the condition:

(1) Congenital anomaly.

(2) Fetal spasm of the pylorus.

(3) Primary hypertrophy with secondary spasm.

The classical signs of stenosis present a striking picture, and in general where we find projectile vomiting of gastric contents without bile, visible gastric peristalsis, particularly noticed after the taking of fluid, loss of weight and constipation with starvation stools, the diagnosis of stenosis may fairly be made.

Such varied results have been reported with both types of treatment that an analysis of the cases which have been treated at the Massachusetts General Hospital may be of interest, particularly since the earlier cases were treated by posterior gastroenterostomy. In all, thirty-one cases were found in which the diagnosis seemed reasonably assured, all occurring since the year 1908.

The usual sex incidence is found in this series, thirty, or 96.7 per cent., having been males.

Twenty-eight, or 90.3 per cent., had visible peristalsis; in three it was absent, or more probably was not noted.

Twenty-three, or 74.2 per cent., had palpable tumors.

All cases had projectile vomiting, the age of onset ranging from birth to 6 weeks.

Twenty, or 64.5 per cent., were characteristically constipated; in two no constipation was claimed. No definite statement was made regarding the other nine.

Twenty-eight, or 90.3 per cent., were breast fed at least until the onset of symptoms. It is a deplorable fact that a number were weaned on account of the vomiting.

Seventeen showed loss of weight; one had gained and retained weight since birth, and insufficient evidence was given concerning the remainder. None were premature infants.

One patient was discharged against advice without treatment, two marantic infants died before operation, and one recovered after treatment by gastric lavage and breast milk.

Twelve cases were treated prior to 1918 by posterior gastroenterostomy with a mortality of 50 per cent.

Fifteen cases have been treated by the Fredet-Rammstedt operation with two deaths, or a mortality of 13.3 per cent., a death rate which should be lowered as a result of earlier diagnosis and careful pre-operative treatment. It must also be borne in mind that hospital mortality is always increased by the number of patients referred to the institution too late for successful treatment.

An attempt was also made, for comparative purposes, to analyze the cases of pyloric spasm, but for one reason or another only twelve seemed sufficiently well substantiated to include. One case so classified in the records was one of vomiting as a result of gastric atony, one was shown by x-ray to have esophageal obstruction, and one, with visible peristalsis, projectile vomiting and constipation was found at autopsy to have hemangio-endothelioma of the pancreas with metastases in the small intestine.

Only four, or 33.3 per cent., of the series in whom the diagnosis of spasm was sustained, exhibited peristalsis. In but five was the vomiting projectile in character. In four alone was constipation present. In only one was a tumor felt. Five showed loss of weight; all but one had been breast fed until the onset of symptoms; three were premature infants. The ages at which vomiting began were similar to those in the stenosis group. It is interesting to note that only 58.3 per cent. of this group were boys.

Accepting 13.3 per cent. as the existing mortality at the Massachusetts General Hospital for surgically treated cases (Fredet-Rammstedt operation), based on a series of only fifteen cases, it will be valuable to see what other authors have reported with both medical and surgical treatment.

Ernberg and Hamilton[4], in 1921, reported 57 cases from Sweden treated medically with a mortality of only 3.5 per cent. Eighty-one per cent. of their series were boys. Their treatment consisted in Ringer's solution per rectum or by hypodermoclysis to prevent dehydration, breast milk, and isolation to ward off intercurrent infections. Prolonged hospitalization was necessary.

Davison[2], in 1925, reported 32 cases from the Johns Hopkins Hospital with a mortality of 9 per cent., 3 cases having died on admission. He recommends operation on those cases with unmistakable signs of complete obstruction, and on breast fed infants whose mothers cannot nurse them regularly.

His treatment consists in breast milk regularly sufficient to give 100 calories per kilogram of body weight per day; refeeding after vomiting, and gastric lavage followed by refeeding if vomiting persists. In this series also prolonged hospitalization was necessary.

Abt and Strauss[5], in 1926, reported 221 operated cases with a mortality of slightly over 3 per cent.

Ladd[6], in 1927, reported 197 cases, 80 per cent. of whom were males, with a mortality of 5.5 per cent. Of these, 35 were private cases with a mortality of only 2.8 per cent.

Sauer[3], in 1924, published the following stat-

istical comparison of medically and surgically treated cases.

STATISTICAL COMPARISON OF SURGICAL AND MEDICAL TREATMENT

Medical Series

Author	No. Cases	No. Deaths	% Mortality
Heubner	21	2	9.8%
Starck	12	1	8.3
Bendix	32	2	6.2
Rietschel	80	8	10.
Oberwarth	20	0	0.
Hertz	61	12	20.
Focart	15	3	20.
Delprat	21	8	38.1
Carstens	30	2	6.6
Ernberg and Hamilton	57	2	3.5
Ibrahim	52	1	1.9
Sedgwick	44	1	2.3
Haverschmidt	42	2	5.
Porter	10	0	0.
Total	497 Medical	44	Average 8.9%

Surgical Statistics—Rammstedt Operation

Author	No. Cases	No. Deaths	% Mortality
Drachter	40	6	15.0%
Downes	174	28	17.1
Strauss	246	8	3.3
Borchardt	301	49	16.3
Total	761	91	Average 12.0%

It is apparent that in skilled hands either medical or surgical treatment may give excellent results in this condition. If time is not a factor; if large quantities of breast milk are available; if skilled care is obtainable for gastric lavage, tube feeding and hypodermoclysis; and if hospitalization with isolation can be resorted to, medical treatment may be more successful, at least in the milder types of cases.

The simple muscle-splitting operation should be employed in all other cases, bearing in mind the importance of preparation with hypodermoclysis or transfusion, and post-operative feeding with breast milk as essentials for a low mortality. In fairness to the surgeons, it should also be recognized that many of their cases may be those with whom medical treatment has failed, or those which are considered too severe even to attempt it.

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STUDY IS COMPLETED OF CAUSES OF DEATH AMONG POOR CLASSES

In view of the fact that many statements have been made in general terms with respect to the effect, or lack of effect, of economic status on disease prevalence, S. D. Collins, associate statistician of the Public Health Service, has made a collection and analytical review of the available data regarding the bearing of economic status on morbidity and mortality. This study, soon to be issued as Public Health Bulletin No. 165, considers the death rates from specific causes for specific periods of life, in an attempt to find which causes of death vary with economic status, and, of those which vary, which increase and which decrease as economic status falls.

Among adults, death rates for the great majority of the common causes of death tend to be higher among the poorer classes, but death from diabetes, gout and diseases of the liver tend to be lower among the poorer classes than among the well-to-do.

Among infants, death rates from gastric and intestinal, respiratory and epidemic infectious diseases are much higher among the poorer classes, but death rates from premature birth, congenital malformations, and other causes associated with early infancy are relatively constant in the different economic classes.

The factors involved in the phenomenon of varying sickness and death rates among different economic groups seem to be of a specific character; but at present, data are not available to show the relative importance of environment, heredity and selection, all three of which are no doubt important in the problem. —*United States Daily.*

SURVEYS OF HEALTH IN CITIES LIMITED BY LACK OF FUNDS

REQUESTS FOR INQUIRIES REFUSED BY PUBLIC HEALTH SERVICE DUE TO PAUCITY OF APPROPRIATIONS

The Public Health Service has an officer of administrative health practice. Through the activities of this office, in coöperation with various health departments, a survey of 100 large cities in the United States was made, and has recently been printed as Public Health Bulletin No. 164. This bulletin contains so much of interest and value to health departments that many requests are being received by the Public Health Service for similar work in other localities. It is impossible for the Public Health Service to comply with the requests received on account of its limited appropriations and funds available for this purpose.

The chief objective of this work is the reorganization and expansion of State and local health services. The promotion of better public health administrations is a legitimate function of the Public Health Service, which is authorized by Congress to investigate not only the diseases of man, but the conditions influencing the propagation and spread of these diseases.—*United States Daily.*

GERMS CAUSE DEATH WHEN TUBE BREAKS

WOMAN LABORATORY WORKER IS FATALLY INFECTED FROM A CUT ON HER FINGER

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BERLIN—The accidental breaking of a test tube containing a germ culture of the highly contagious spotted typhus has caused the death of Fraulein Brandt, a laboratory assistant, who became infected with the dangerous disease when her finger was cut by the broken glass.

The culture was sent here by Professor Kuezynski, who himself became affected with the same disease and is now lying ill in a Lemberg (Poland) hospital.

Professor Kuezynski has made a special study of spotted typhus and was one of the first who advanced the theory, which has since been proven, that the germs were transmitted through body lice. He recently completed a journey through Russia for research work, and to show members of the colleges here the progress he was making he sent the tube to a Berlin laboratory.

Ten days elapsed from the time Fraulein Brandt was infected until the disease manifested itself, and death then resulted within a few hours.

Case Records
of the
Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY R. C. CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 13231

FIVE WEEKS' ABDOMINAL PAIN

MEDICAL DEPARTMENT

A man of seventy-four, formerly a fisherman, then a shoe factory operative, was sent from the Out-Patient Department March 26 for study of pain in the abdomen.

He was very well and vigorous for his years until five weeks before admission, when he had a gradual onset of "growling" mid-abdominal pain which radiated equally to both sides and spread generally throughout the abdomen. With it he had severe frontal headache which lasted all day and a "chilly" feeling in his lumbar spine. The pain kept him awake at times. He felt generally ill. The pain had persisted unchanged since the onset, with occasional remissions of a few hours. Nothing affected it for better or worse. Since the onset he had had no energy, he thought purely because of the pain. He had been under constant medical treatment, taking among other things catharties for constipation which he had always had. He had consequently had one or two rather loose stools in small pieces daily; otherwise the treatment had given him no relief.

His family history so far as he knew it was of no importance except that one brother had a "fistula" which the patient thought was probably cancer.

He had scarlet fever in childhood. His appetite had always been poor. For years he had had chronic dry winter cough. At seventeen he had a chancre, at twenty-four gonorrhea. He had had dyspnea on exertion for a year or two.

Records of the Out-Patient Department show that four years before admission he was treated for pain, redness, tenderness and swelling of the anterior border of the left tibia. A Wassermann was strongly positive. X-ray showed an area of thickening of the soft parts on the anterior aspect of the leg just above the middle. Beneath this area the cortex of the tibia showed an area of destruction measuring about 3 centimeters with evidence of a small amount of bone proliferation in the soft parts. The surrounding bone structure was normal in appearance, and the medullary canal appeared normal. In the South Medical Department he was given a course of neoarsphenamin through September and October. The leg became entirely normal. The following May another Wassermann was strongly positive. In June the spinal fluid was normal. Another course of neoarsphenamin was given in June and July. He was not seen again until March 16, ten days before admission to the ward, when he complained of epigastric pain and loss of eight pounds in weight. X-ray showed no evidence of organic disease in the stomach or duodenum.

Clinical examination showed an emaciated, somewhat anemic looking old man in no apparent distress. One nevus the size of a dime in the left scapular region. Questionable slight jaundice of the sclerae. Apex impulse of the heart not found. Percussion measurements: left border 10 centimeters, 1 1/2 centimeters outside the midclavicular line, right border 2 1/2 centimeters, supracardiac dullness 6 centimeters. Action regular, sounds of fair quality. No murmurs. Aortic second sound accentuated. Artery walls thickened and tortuous. Blood pressure 190/100 at entrance. Lungs normal. Too much voluntary spasm in the epigastrium for palpation of the abdomen. No visible peristalsis. Prostate rather hard but not enlarged or lumpy. Small varicosities on the right lower leg. Knee-jerks and ankle-jerks normal. The great toe of the right foot persistently turned up on plantar reflex, Oppenheim and Gordon.

Amount of urine normal on the four days recorded, cloudy at one of five examinations, alkaline at all, the slightest possible trace of albumin at one of 7 examinations, specific gravity 1.010 to 1.026; sediment showed 1 to 50 leucocytes per high power field at 4 examinations, none at one, occasional red blood corpuscles once. Renal function 50 per cent. Blood: 13,000 to 23,000 leucocytes, 70 per cent. polynuclears, reds normal. One Wassermann moderately positive, two strongly positive. Non-protein nitrogen 42 to 56. Icterus index 2. Stools, guaiac negative at 4 examinations. Fasting contents of stomach 20 cubic centimeters white material, no free acid, total acidity 3, guaiac negative. Test meal 40 cubic centimeters, white, free acid 27, total acidity 37, guaiac negative.

Two X-ray examinations with a barium enema showed no definite filling defect that suggested organic disease. At the second examination there was some spasm in the region of the hepatic flexure, but this was relaxed by amyl nitrite. Examination with a barium meal showed no evidence of organic disease in the stomach or duodenum. The stomach was displaced somewhat to the left. The hepatic flexure was displaced slightly downward by an enlarged liver. The cecum was negative. The lumbosacral region and pelvis were obscured by barium in the colon. At an unsatisfactory Graham test the gall-bladder was not visible in any

of the plates. The findings suggested gall-bladder disease.

Temperature 96.1° to 99.1°, with a terminal rise to 105.3°. Pulse 71 to 91, with a terminal rise to 134. Respirations normal except for a terminal increase to 47.

The visiting physician found a small hard mass in the right upper quadrant. A gastro-intestinal consultant reported: "There is certainly a palpable slightly tender mass in the region of the hepatic flexure which I do not believe to be liver. There is also considerable epigastric tenderness. No epigastric mass palpable on account of spasm." A surgical consultant advised against operation unless the patient's discomfort made it seem necessary. April 6 the mass was felt to be continuous with the liver dullness. The patient twice vomited the pills for the Graham test.

The night of April 11 he sat up in bed, fell over on his right side and was unable to move or talk. His right arm and the right side of his face were paralyzed. The right leg was not. He was unable to comprehend commands or to answer. The next morning he was stuporous. He moved his left side restlessly during examination and mumbled incoherently. His breathing was somewhat stertorous. His cheeks bellowsed slightly. He was incontinent of urine and feces. There was complete paralysis of the whole right side, face, arm and leg. All the reflexes were active. There was positive Babinski on the right. The blood pressure was 150/80. The lungs were full of rhonchi which obscured the other chest sounds. With relaxation of the muscles the mass in the right upper quadrant seemed to be definitely in the liver and the continuous irregular liver edge was felt along the right subcostal margin. April 14 the patient died.

Discussion

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

Our history prior to that of the Out-Patient Department gives no clear or intelligible clue to what is coming. We expect some abdominal disease and that is about as much as we can say.

The Out-Patient notes add nothing except evidence of a diagnosis of syphilis and a local lesion which may have been syphilis.

NOTES ON THE PHYSICAL EXAMINATION

The only important or definite physical sign is the mass of which we hear rather little in the beginning, more and more as we go on until with the complete relaxation of a comatose patient it is said to be very definitely continuous with the liver. Moreover the rest of the liver, outside of the mass, is found to be irregular.

DIFFERENTIAL DIAGNOSIS

If that last statement is true it is of the greatest importance. There is only one lesion, in this part of the world, that gives us an irregular liver, and that is cancer. Cirrhosis does not ordinarily give palpable irregularities. Syphilis gives irregularities much larger or more discrete than those here suggested.

Did you examine the head, Dr. Mallory?

Dr. Mallory: No.

Dr. Cabot: Then I will not discuss what was in all probability a cerebral hemorrhage unconnected with the main cause of his death. There is no reason to suppose anything wrong in the circulatory system except the arteriosclerosis usual at his age and some hypertrophy of the heart corresponding to the hypertension. In the lungs I think there will be only passive congestion. The gastro-intestinal tract has been thoroughly investigated and nothing found. The nervous system, outside the brain, certainly suggests nothing. The kidneys are normal.

Our evidence centers, then, in the liver outside the bile-ducts. He has never had jaundice or pain suggesting colic. He has had evidence of syphilis both in a lesion on the leg and in Wassermanns positive on three occasions. But I cannot see any way in which his syphilis, if he has had it, can be connected with his death. He shows none of the syphilitic lesions from which people die. People do not die of syphilis of the liver so far as I have ever known. They die of something else and at necropsy show syphilis of the liver as a historical landmark. Yet here the only lesion suggesting a cause of death is in the liver region.

Now we ought to recall the fact that his prostate has been stated to be hard but not irregular or large. That is perfectly consistent with cancer of the prostate. Cancer of the prostate is one of the lesions which often metastasize to the liver and bones. We do not know anything about the possibility of metastases in the lungs, which, so far as I know, are possible. Have we any chest plates?

Miss Painter: No, they are all gastro-intestinal.

Dr. Cabot: The gall-bladder was not visible in the Graham test. Ordinarily that means a gall-bladder lesion, but if so I do not know what that lesion is here. It might conceivably be carcinoma, but ordinarily carcinoma of the gall-bladder goes along with jaundice, because the ducts are affected. If he had cancer of the liver why didn't he have jaundice? Presumably because not enough of the bile-ducts were stopped up to produce jaundice. He was emaciated and anemic looking, as he should be with the disease I have supposed, though his blood does not show much anemia.

I think we should suppose, on the basis of the facts before us, that he had carcinoma of the

liver, presumably metastatic. At to the primary focus I can think of nothing better than the prostate.

I think the terminal event had no connection with the main cause of death. But when one supposes two separate diseases both related to a person's death, one always stops to see whether one can connect them. Possibly there was a cerebral metastasis from carcinoma, perhaps with hemorrhage within such metastasis, which I believe is not uncommon. In the other direction, can we suppose that arteriosclerotic lesions could have caused both his cerebral and his abdominal trouble? No, I do not think so. There have been many attempts to find a clinical picture of arteriosclerosis of the abdominal vessels. Such sclerosis of the vessels often exists. It seems as if there ought to be a clinical picture corresponding to it. I have read a good many articles attempting to work out such a picture, but I have never seen any satisfactory result. The only clinical evidence I know of abdominal arteriosclerosis is in connection with blocking of an artery (ordinarily of a mesenteric vessel) with intestinal obstruction. As we have nothing here to point to this, which is the only lesion I have any means of recognizing in the abdomen, I have to exclude this as a possible way of connecting his death with his arteriosclerotic trouble.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Carcinoma of the liver. (Primary focus?)
Lues.
Bronchopneumonia.

DR. RICHARD C. CABOT'S DIAGNOSIS

Carcinoma of the liver, metastatic.
Carcinoma of the prostate?
Cerebral hemorrhage (from cerebral metastasis?)
Arteriosclerosis.
Chronic passive congestion.

ANATOMIC DIAGNOSES

1. *Primary fatal lesions*

Carcinoma of the pancreas.
Metastasis to the liver.

2. *Secondary or terminal lesions*

Vegetative endocarditis (streptococcus hemolyticus.)
Bronchopneumonia.

3. *Historical landmarks*

Healed tuberculosis of the lungs.
Arteriosclerosis.

DR. MALLORY: Metastatic cancer was present in the liver, but the primary source of it was not in the prostate but in the pancreas. The tail of the pancreas showed a quite large tumor mass, six by four by three centimeters, which was white, dense, and very scirrhous for the most part, a small area showing hemorrhagic and mucoid degeneration.

DR. CABOT: Did it seem as though that might have been palpable during life?

DR. MALLORY: I should think so. It was pretty well over towards the tail, but it would not have been covered by the spleen. I should think it might have been felt in a relaxed abdomen.

He had also another lesion which was a complete surprise so far as the record is concerned, —a vegetative endocarditis. On one of the cusps of the mitral valve was a small vegetation about half a centimeter in diameter. In view of that I think it is most probable that his cerebral involvement was due to an embolus, although of course we can only guess. The heart was not large. It weighed only 300 grams, and except for this vegetation spoken of was essentially negative. The coronary arteries were large, with very slight atheroma. The aorta showed very marked arteriosclerosis, but there was nothing definite on which we could say that the man had had syphilis.

He had a slight degree of very early bronchopneumonia and a healed tuberculosis at both apices.

DR. GEORGE W. HOLMES: Did you examine the shin to see what that irregular erosion was on the anterior aspect?

DR. MALLORY: No, we did not.

DR. CABOT: I think it would be interesting some time to look up how long it is since a diagnosis of syphilis has been verified here post mortem. I think it must be years.

DR. MALLORY: It is not quite so bad as that. We have had four this winter.

DR. CABOT: I did not say diagnoses made post mortem, but verification of diagnoses of syphilis suspected during life.

DR. MALLORY: I would cut it down to two, then.

DR. CABOT: There was a point in this case about which I should like to ask Dr. Holmes. The Graham test was done on the gall-bladder and the gall-baldder was not visible. Yet nothing was found in the gall-bladder after death.

DR. MALLORY: No. It was entirely negative.

MISS PAINTER: The patient vomited the pills at both Graham tests.

DR. HOLMES: With the Graham test we are obliged to make a positive diagnosis on a negative finding. If there is no pathology present and the test is positive there is usually some fault in the technique of the examination. It may be because the patient does not carry out the instructions, or the plate may be poor. There is plenty of chance for error.

CASE 13232

TREATMENT LATE IN INTESTINAL OBSTRUCTION

SURGICAL DEPARTMENT

An American widow eighty years old entered March 23 complaining of severe cramp-like pain in the region of the umbilicus of three days' duration, with constipation. Her mind wandered and her memory was hazy, so that it was difficult to get a satisfactory history.

Seven years before admission the patient was operated upon for the removal of two cysts. H physician told her that the wick was left in too long and that adhesions formed. Since that time whenever her bowels were constipated she had an attack similar to the present one, usually relieved by salts.

The present attack came on late the night of March 19, severe cramp-like abdominal pain. She took two tablespoonfuls of salts, but had no bowel movement for thirty hours. After two good bowel movements the severe pain was relieved and she was comparatively comfortable the rest of that day, March 21. The following morning at two o'clock she was awakened with severe cramp-like abdominal pain which persisted throughout the day. March 22 she gave herself an enema and produced three small hard fecal masses but had no relief from the pain. Later a nurse gave her an enema with no result except gas. She could not remember the day very clearly, but thought she had vomited for the first time. As talking seemed to tire her and bring on cramp-like pains the history taking was stopped at the end of the present illness.

Clinical examination showed a withered, emaciated, deaf and blind old woman appearing very ill. Tongue dry and furrowed. No teeth left except carious roots. Pyorrhea. Heart not enlarged to percussion. A loud blowing systolic murmur in the precordia loudest at the right of the sternum, transmitted to the great vessels of the neck. A thrill over the area of maximum intensity of the murmur. Arcus senilis. Artery walls palpable and tortuous. Lungs normal to percussion. Ascultation not satisfactory. Abdomen markedly distended and tympanitic below the umbilicus, rather tender over this area. No masses felt. A small hernia in a median longitudinal scar from the umbilicus to the pubis. Rectal examination showed no masses. There was bogginess and tenderness in the pouch of Douglas. Right eye enucleated. Left eye showed a corneal ulcer above the pupil, which was small, irregular and reacted very sluggishly, probably because of morphia. Knee-jerks normal.

Before operation amount of urine not recorded, a slight trace of albumin in the single specimen, specific gravity 1.032; blood not recorded. Wassermann negative. Non-protein nitrogen 31 milligrams. Blood chloride 602 milligrams. Vomitus: macroscopic blood, guaiac positive. Two stool examinations showed guaiac negative; bile positive once.

Before operation temperature 99.3° to 98.4°, pulse 80 to 90, respirations 30 to 18.

Magnesium, glycerin and water enemas gave fair results. The patient vomited only once March 23 and once the morning of March 24, small amounts, mostly gastric juice. March 24 she was given fluids with milk and subpectorals. The morning of March 25 she vomited again and was very ill.

That day operation was done. She had relief for a few hours. Toward evening she began to grow worse. The respiratory rate increased. The lungs filled up with fluid. Next day she went rapidly downhill. She was semiconscious, with many tracheal râles. The vomitus was stercoraceous; guaiac strongly positive. Stool examination gave a strongly positive guaiac. The non-protein nitrogen was 52 milligrams, the blood chloride 586. She was given three grains of digifolin intramuscularly twice. The lungs filled up more and more. The respiration became shallow. The night of March 26 she died.

DISCUSSION

BY EDWARD L. YOUNG, JR., M.D.

This case brings up the question of intestinal obstruction. Here it is in a woman who is such a poor surgical risk that the first attempt is to get temporary relief from the condition as she had done before, with the feeling that she might die of some other condition before she had another attack.

Whenever there has been a previous abdominal operation attacks of cramp-like pain with temporary obstipation with or without vomiting spell obstruction unless some other condition makes itself known. And as here, the attacks may relieve themselves spontaneously or by some method that the patient has used to force a passage through the bowel.

As she comes in the blood chemistry is not abnormal. The chlorides are a little high. The non-protein nitrogen is normal.

The fact that she did have some bowel movement of course does not do away with the fact that there is the obstruction present, even though violent purging forces something through. It does not mean that the essential condition has been relieved.

The operation was an operation forced because she was getting worse. The only thing to do is to open the abdomen under local anesthesia and do as little as possible to relieve the situation.

What is that situation? The logical thing to consider is a band due to adhesions from the

previous operation. But some trivial adhesions, not enough to cause obstruction, may have caused a volvulus. Because we have here positive guaiac both in the vomitus and in the stools, so that there is an area of tremendous congestion. That comes from volvulus, from mesenteric thrombosis, in children from intussusception, and it can come from a band, but is very much less likely to come from that.

It is of course possible that there is also here a malignancy, perhaps not at all connected with the operation, which is making trouble. In any event we have the picture of a person practically *in extremis* from intestinal obstruction or from some acute abdominal condition, and the only thing to do is to see if any relief can be given. I presume that they opened the abdomen under local anesthesia. I certainly do not think any other anesthetic was justified, at least to start with.

PRE-OPERATIVE DIAGNOSIS

Intestinal obstruction.

DR. YOUNG'S PRE-OPERATIVE DIAGNOSIS

Intestinal obstruction.

OPERATION

Local novocain; ethylene. Under local anesthesia the abdomen was opened through the right rectus muscle. Coils of dilated and slightly congested small intestine presented. There was no evidence of peritonitis; a small amount of clear fluid. The cecum was not dilated. On account of pain and difficulty of exploration the patient was given ethylene. Under ethylene she vomited and stopped breathing, so that artificial respiration had to be given. A brief exploration failed to show the cause of the obstruction. A catheter was tied into the dilated ileum by the Witzel method and the wound closed.

Further Discussion

I do not believe that the condition in the lungs is any more than she is entitled to at her age, with what she went through. I have no guess as to what was in the abdomen. We will let Dr. Mallory tell us.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Intestinal obstruction.
Hypostatic pneumonia.

DR. EDWARD L. YOUNG'S DIAGNOSIS

Intestinal obstruction.

ANATOMIC DIAGNOSES

1. *Primary fatal lesion*

Intestinal obstruction from fibrous adhesions.

2. *Secondary or terminal lesions*

Arteriosclerosis of aorta and kidneys.
Bronchopneumonia.

3. *Historical landmarks*

Operation wound—enterostomy.
Chronic bronchitis.
Leiomyomata of the uterus.

DR. MALLORY: The large intestine was dilated, and arising from the mesentery of the sigmoid was a fibrous cord fifteen centimeters in length which had encircled several loops of small intestine. The loops of small intestine were deeply congested and contracted, whereas the large intestine, the cecum and the transverse colon were greatly dilated. This fibrous cord arose from the mesenteric attachment of the sigmoid, in the region in which the ovariotomy had been done some years before.

DR. CABOT: Have you anything to add, Dr. Richardson, as to this operation?

DR. E. P. RICHARDSON: I think that giving the patient general anaesthesia with ethylene was a mistake, considering the age and condition of the patient. We hoped that obstruction would subside in this case without operation, as it had before, but were forced to undertake it. Operation was begun under local anesthesia. The cause of obstruction was not obvious. A catheter might have been inserted in the ileum at this point, particularly since the presence of clear fluid suggested that strangulation of the bowel with danger of peritonitis was unlikely. But it seemed probable that the obstruction was due to adhesions, in view of the previous attacks with spontaneous recovery. Ethylene and oxygen anesthesia was given in the hope of finding and relieving the obstruction. There is considerable danger in this procedure in intestinal obstruction, whether ethylene or gas-oxygen is used. The stomach may contain regurgitated intestinal contents, and if the patient vomits she may drown in her own vomitus before the gas mask can be unstrapped and removed. The anesthetist was told not to strap on the mask, and to remove it immediately if vomiting took place. So in this instance, although vomiting occurred and respiration stopped, it was not immediately fatal, although harmful to the patient. The exploration was necessarily hurried, and the site of the obstruction not found, so that the final result of the operation, an enterostomy with a catheter, might have been accomplished with less risk under local anesthesia alone. I do not believe, however, that the patient would have recovered even if general anesthesia had been avoided.

THE BOSTON
Medical and Surgical Journal

Established in 1828

Published by The Massachusetts Medical Society under the jurisdiction of the following-named committee:

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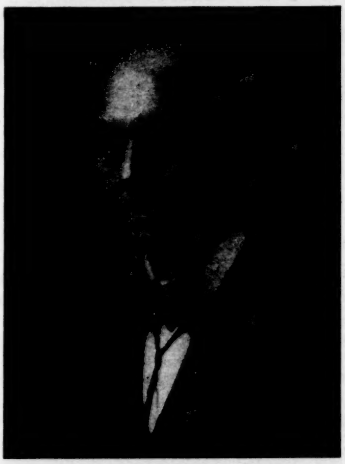
Subscription Terms: *$6.00 per year in advance, postage paid for the United States, $7.56 per year for all foreign countries belonging to the Postal Union.*

Material for early publication should be received not later than noon on Saturday. Orders for reprints must be sent to the Journal office, 126 Massachusetts Ave.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The Boston Medical and Surgical Journal, 126 Massachusetts Ave., Boston, Mass.

The President of The Massachusetts Medical Society



JOHN MATHEWS BIRNIE

John Mathews Birnie was born in Rockville, Connecticut, September 5, 1878, son of William Perkins Birnie and Mary Mathews Birnie. He received his early education in the public schools of Springfield, Massachusetts. He graduated from Williams College with A.B. degree in 1901 and from the Harvard Medical School in 1906. He served an internship of twenty-seven months at the Lankineau (formerly German) Hospital of Philadelphia, Pennsylvania, and was admitted to the Massachusetts Medical Society July, 1906. He was called to active duty in the World War July, 1917, as a first Lieutenant in the Medical Corps and was discharged from the service July, 1919, as Lieutenant Colonel, having served over seas twelve months, as commanding officer of the 306th Sanitary train 81st division. He is a member of the New England Surgical Society and a Fellow of the American College of Surgeons. He was married in 1920 to Hazel Ricker of Holyoke, Massachusetts, and they have three children; Johnathan, Benjamin, and Joan Birnie. He is visiting Surgeon to the Springfield Hospital, Visiting Surgeon Monson State Hospital, Surgeon of the Mary Lane Hospital, Ware, Massachusetts, Consulting Surgeon New England Shrine Hospital for Crippled Children. He is Chairman of the Massachusetts Board of Registration in Medicine. We extend our congratulations to Dr. Birnie for the honor conferred and to the Massachusetts Medical Society for another year of increasing usefullness.

WHAT WILL BE DONE TO TAKE THE PLACE OF THE FLOATING HOSPITAL?

The recent destruction of the Floating Hospital by fire presents a serious problem to the Trustees of that institution. This event at first strikes one as a definite calamity and the first thought is probably with respect to a replacement consisting of a larger and better hospital somewhat along the same general design as that of the one which has been destroyed.

The underlying purpose in the creation of the Floating Hospital was to take children away from the unwholesome surroundings of congested districts and summer heat and to bring to bear the tonic effect of cooling breezes and carefully arranged regimen. At that time the diarrhoeal diseases of childhood ran rampant, decimating unnecessarily hundreds of tiny lives. Today those diseases form a negligible fraction of the nutritional disturbances of infancy due to the application of knowledge relating to the principles of nutrition and to the generalized pasteurization of milk.

So the medical staff of the Floating Hospital soon turned its attention to other important problems of disease and has applied modern knowledge to the treatment of all sorts of morbid conditions of childhood and has conducted in-

vestigations which have been of great importance.

It has seemed unfortunate that the work of this staff has been more or less interrupted because of the limited time in which this hospital has functioned and the doctors have had a great ambition to study continuously with the determination to discover more efficient methods of treating the diseases of childhood. As an illustration, the study of whooping cough by the staff of the Floating Hospital has been of great importance and may have paved the way for a great advance in the treatment of this disease. Other investigations are underway.

It has seemed that the idle period of this large investment in the Floating Hospital was not an economic use of the funds there tied up and the question may be asked that since matters of importance remain unsolved may it not be better to have an institution created to take the place of the Floating Hospital which can function throughout the year. This question of course is based on the generally accepted belief of the medical profession that the need of a Floating Hospital is no longer paramount, with the change in the type of cases seen today, and that the fire hazard which is bound to exist far out weighs its possible benefits over and above a permanent institution.

Fortunately the ship was insured for an amount sufficient to be the nucleus of a fund which with additions well within the probability of meeting through contributions would provide a good permanent hospital which would furnish accommodations for the continuous activities of the staff.

It may be that since no lives were lost in the conflagration the destruction of the hospital may be a blessing in disguise and lead to greater benefits that would follow continuance of the original work for which the ship was designed.

We believe the people will furnish the means and we hope that the staff will have sufficient influence with the trustees to bring about the best solution of the problem now confronting the corporation.

THIS WEEK'S ISSUE

CONTAINS articles by the following authors:

ROSE, WILLIAM H., M.D. Harvard Medical School 1898, F.A.C.S.; Surgeon to Memorial Hospital, Worcester, Mass. Consulting Surgeon Fairlawn Hospital and The Worcester State Hospital. Chief Surgeon of the American Steel and Wire Co. for Worcester, New Haven and Trenton. His subject is "Industrial Surgery." Page 933. Address, 340 Main Street, Worcester, Mass.

SMITH, MILLARD, B.S., M.S., M.D. Harvard Medical School 1923. Assistant in Thorndike Memorial Laboratory, Boston City Hospital. His subject is "A Case of Chronic Nephritis Maintained for Six Months on an Average Daily Protein Intake of 0.26 Grams per Kilogram of Body Weight." Page 941. Address, Boston City Hospital.

THOMPSON, C. J. S., M.B.E. London, England. Ex-curator of the Wellcome Museum, London, England. Secretary Section of History of Medicine, Royal Society of Medicine, London. His subject is "Surgical Instruments Designed by Lord Lister." Page 946. Address, care Royal College of Surgeons of England, Lincoln's Inn Fields, London, W. C. 2.

GARLAND, JOSEPH, A.B., M.D. Harvard Medical School 1919. Visiting Physician to the Children's Medical Department Massachusetts General Hospital. Assistant in Pediatrics Harvard Medical School. Secretary New England Pediatric Society. Associate Editor BOSTON MEDICAL AND SURGICAL JOURNAL. His subject is "Choice of Treatment in Congenital Pyloric Stenosis." Page 951. Address, 270 Commonwealth Avenue, Boston, Mass.

EXHIBITION OF WORKS OF ART AT THE BOSTON MEDICAL LIBRARY BY NEW ENGLAND PHYSICIANS AND SURGEONS

A FEW particulars (which, however, may be subject to further change) concerning this exhibition are given below:

As already announced, the exhibition will be opened about November 1, and will be continued for two or three weeks. As the Library is regularly open on every week day, from 9:30 A. M. to 6 P. M.; and on Mondays, Wednesdays, and Fridays until 10 P. M., the exhibition also will, probably, remain open during these same hours.

NATURE OF WORK FAVORED

1. Paintings (Oils and Water Colors).
2. Pastels.
3. Drawings, Engravings, Etchings, Lithographs.
4. Sculpture (including Wood-Carvings, etc.).
5. Industrial Art (Wood-and-Metal-work, Pottery, Book-binding, Jewelry, etc.).
6. Photographic work by doctors but not relating to professional subjects.

NOTIFICATION AS TO INTENTION TO EXHIBIT

In view of the natural desire of the committee to know as early as possible, not only the number of contributors to the exhibition, but also the number, nature, and size of the articles to be contributed, it is requested that all those physicians who intend to send articles for exhibition will so notify the committee, and will also give a brief description of the articles they wish to exhibit, specifying as to number and

size. As space at the Library is limited, calling for rigid economy in this particular direction, the committee will be obliged to exercise its discretion as to the amount of space to be assigned to any one exhibitor.

EXPENSES

Expenses of transportation to and from the library are to be borne by the exhibitor. A small fee will be charged, in order to help defray the expenses of the exhibition, such as insurance, services of an attendant, etc.

Address all communications to the Committee through the Boston Medical Library, 8 The Fenway, Boston, Mass. (Tel. Kenmore 1617.)

MISCELLANY

PRODUCERS OF DRUG SOLD AS FAT REDUCER DENIED USE OF MAILS

A COMBINATION of "hypo" salt, used largely by photographers, with baking soda, iodides and perfume, will not effect a cure for dropsy or serve as a fat-reducer when used in a bathtub of hot water, in the opinion of Government chemists who analyzed an alleged medical preparation known as "Florazona."

This announcement has just been made by the Solicitor of the Post Office Department, Horace J. Donnelly, who said that the Postmaster General, Harry S. New, has denied the use of the mails to the Florazona Corporation, New York City, for selling the preparation through the mails under alleged misrepresentations.

The Florazona Corporation was incorporated under the laws of the State of New York in 1922. The capital stock, consisting of 150 shares of no par value, is owned equally by Mr. M. Rosenberg, the originator of the business, and Mr. M. Rubin. Mr. Rosenberg is president of the concern, and Mr. Rubin is secretary and treasury. These gentlemen operate the business with the assistance of one employe. No physicians, chemists, or pharmacists are employed in connection with the business. The formula for the only preparation sold, namely "Florazona," was invented by Mr. Rosenberg.

According to the promoters the yearly advertising cost is estimated at $7,000 and the gross receipts for the calendar year 1925 were approximately $20,000.

The promoters declined to divulge their formula but analyses made by the Bureau of Chemistry, United States Department of Agriculture, which were not contraverted, showed that "Florazona" is essentially sodium thiosulphate ("Hypo" salt, used largely by photographers), a small amount of sodium bicarbonate (baking soda), a trace of iodides, and perfumes. The evidence shows that the $3.50 package containing 14 so-called "treatments," could be manufactured for about 17½ cents.

Dr. F. L. Kebler, physician and drug expert, who has had considerable experience in the treatment of obesity, testified on behalf of the Government.

This expert testimony on behalf of the Government was not contraverted in any way whatsoever by the respondents.—*U. S. Daily.*

A RECEPTION TO DR. WILMER KRUSEN

A LARGELY attended reception to Dr. Wilmer Krusen, the recently elected President of the Philadelphia College of Pharmacy and Science, was given May 27, 1927. Many of the city's best known physicians and pharmacists, and representatives from the faculties of the University of Pennsylvania, Temple University and other nearby educational institutions, were present.

Dr. Krusen's first public appearance as the President of the College will be on Tuesday, June 7, when the cornerstone of the new College buildings at Forty-third Street and Kingsessing Avenue will be laid.

Dr. Krusen, the new President of the Philadelphia College of Pharmacy and Science, is at the present time Director of the Department of Public Health of the City of Philadelphia, and during the years 1916 to 1919, inclusive, also served as the Director of the combined Department of Public Health and Charities.

He was born in Richboro, Bucks County, Pa., May 18, 1869. Before taking up the study of medicine, Dr. Krusen spent four years in Pharmacy and then matriculated in Jefferson Medical College, Philadelphia, from which he was graduated in 1893. He is also Honorary Vice President and Professor Emeritus of Gynecology of Temple University, Philadelphia, and is a Fellow of the American College of Surgeons.

He has occupied more positions than usually falls in the lot of a physician having served as President of the Philadelphia Obstetrical Society; the Philadelphia Clinical Society for two terms; the State Health Association and the Philadelphia Medical Club. In addition to devoting much of his time to public health affairs, Dr. Krusen has been active in the Philadelphia Chamber of Commerce, of which he is a Director; the Pennsylvania State Medical Society, where he is Chairman of the Committee on Public Relations; the Welfare Federation of Philadelphia, in which he is a member of the Board of Trustees; the Phipps Institute of Philadelpiha, of which he is a member of the Advisory Council; the Philadelphia Zoning Commission, the College of Physicians, American Medical Association, Pennsylvania State Medical Association, Medico-Legal Club, Philadelphia Obstetrical Society, the Sydenham Coterie, the

Union League of Philadelphia, and the Masonic Fraternity. He was also a former associate editor of the *Philadelphia Medical Journal*.

APPROVAL OF HOSPITALS OPERATED BY THE VETERANS BUREAU

BRIG. GEN. FRANK T. HINES, director of the Veterans Bureau has just been advised that everyone of the 52 hospitals maintained and operated by the Bureau has been fully approved by the American College of Surgeons which is the criterion in matters of this kind in the United States.

The Veterans Bureau hospitalization program is the largest in the world, and attainment of this high standard throughout the service is one of the outstanding features of the present administration of the Veterans Bureau.

In announcing to the Director the full approval of these institutions Dr. M. T. MacEachern, Director of Hospital Activities of the American College of Surgeons took occasion to acknowledge "the whole hearted support of the Director and his staff and the personnel in the various hospitals considered," as contributory factors in attaining the 100% mark.

Dr. MacEachern stated that, "in no other part of the entire hospital field has the American College of Surgeons received better coöperation than in its dealings with the Veterans Bureau in this respect, and we are very proud indeed to have your hospitals on our approved list."

USE OF LIME FOR IMPURE WATER STUDIED

PUBLIC HEALTH SERVICE SAYS RESULTS ARE NOT COMPARABLE TO CHLORINATION

EXPERIMENTS made by the United States Public Health Service have failed to show that excess lime treatment of water gives a bacterial purification comparable to that of chlorination of the water, the Public Health Service announced in a statement on May 7.—*U. S. Daily.*

RECENT DEATHS

PAYNE—DR. JOHN HOWARD PAYNE, Emeritus Professor of Ophthalmology in Boston University School of Medicine, died at his home in Boston, May 29, 1927, at the age of 72.

Dr. Payne was graduated from Boston University School of Medicine in 1879, when he joined the Massachusetts Homoeopathic Medical Society.

GROUARD—DR. JOHN SHACKFORD GROUARD of Nantucket died at the Phillips House, Boston, May 31, 1927, following an operation for gall bladder disease.

He was a graduate of Harvard Medical School in the class of 1889, joined the Massachusetts Medical Society in 1893 and settled in Nantucket. He had been twice married.

CALL—DR. NORMAN CALL, a retired member of the Massachusetts Medical Society, died at Waban (Newton), May 26, 1927, aged 82.

The son of Dr. Moses and Sarah Bryant Call, he was born at Newcastle, Me., October 23, 1844. After studying at Norwich Academy he entered Bowdoin College, graduating in 1869. He took his M.D. from the College of Physicians and Surgeons, Columbia, N. Y., in 1872, and settled in practice in Roxbury the next year, joining the State medical society. Dr. Call was retired in 1910 and of late years had made his home in Brookline. His wife, who was Florence Mitchell of Brunswick, Me., died about a year ago.

BANNON—DR. JOHN HUGH BANNON, a Fellow of the Massachusetts Medical Society, died at his home in Lawrence, May 27, 1927, at the age of 50.

He was a graduate of Baltimore Medical College in 1898 and was connected with the medical inspection of the schools of Lawrence. He had been ill for some time. He was unmarried.

OBITUARIES

MINUTES ON THE DEATH OF DR. GEORGE T. TUTTLE

(Prepared for the Boston Society of Psychiatry and Neurology, in accordance with a vote passed April 21, 1927.)

DR. GEORGE T. TUTTLE, who died on April 6, 1927, had been a member of this Society since the year following its foundation. Only one member is left who has been associated with it as long as he.

He was born in Northwood, N. H., on March 18, 1850, the son of a much beloved and respected country doctor. He was graduated from Dartmouth College in 1872, and from the Harvard Medical School in 1878. After serving as medical house-officer at the Boston City Hospital, he went as Assistant Physician to McLean Hospital on April 15, 1879. There for twenty-five years he was a highly valued and efficient collaborator with Dr. Edward Cowles in converting the Asylum, as it then was named, into a hospital, starting and conducting a training school for nurses, both men and women, introducing pathological, physiological, chemical, and psychological laboratories and research, developing clinical studies, introducing and enlarging occupational and other physiotherapeutic measures, teaching Harvard Medical students, planning and building the new hospital at Waverley, and in carrying on all the other work of the hospital.

On Dr. Cowles' retirement in December, 1903, Dr. Tuttle became Superintendent of the hospital, a position which he held until his own resignation, April 15, 1919. He was then elected to membership on the Board of Trustees of the Massachusetts General Hospital, the governing board of the McLean Hospital.

To nursing and training-school problems Dr. Tuttle gave much attention from the beginning of his hospital career. He did much to improve the quality of nursing and of instruction to

nurses. He was an active member of committees on nursing and on training schools, and published a few papers on subjects pertaining to them.

From 1905 to 1912 he was Instructor in Clinical Psychiatry in the Harvard Medical School. Then the establishment of the Boston Psychopathic Hospital almost at the door of the medical school supplanted the clinics at Waverley. He was interested in the problems of State Care of the insane, when that was an active issue, and also in the laws concerning them. In 1908 he was appointed by the Governor as Chairman of a Commission, of which Dr. Stedman, then a member of this Society, was also a member, to revise and codify the laws relating to the insane. During the war he was Chairman of the local Auxiliary Medical Defense Committee.

Dr. Tuttle was not a prolific writer. Besides the papers on nursing topics, already mentioned, he wrote a few on clinical subjects. Most of these were published in the *American Journal of Insanity*, as it then was named, though two were included in *Woods' Reference Handbook of the Medical Sciences.*

As a member of this Society Dr. Tuttle read few papers and only occasionally took part in discussions of others' contributions. When he did, he was concise, matter-of-fact, always to the point, and what he said was worth listening to. In 1902 he was elected a member of the executive committee for three years, and in 1906 he was made President. This office was followed by three years more on the executive committee. In recent years, on account of his health and out-of-town residence, he had been an infrequent attendant at meetings of the Society.

On May 14, 1914, he was married to Miss Celeste Weed Allbright of Dorchester, Mass., who survives him. There were no children.

Though rather conservative by nature, Dr. Tuttle was never reactionary, but always an advocate of moderate progress. He was not self-assertive, but having reached conclusions after deliberation, was ready to offer and defend them if called upon. His clear vision and balanced judgment carried great weight with others, and usually determined their decisions. Thoughtful of others, uniformly courteous and gentle, sympathetic and understanding, sound in judgment and wise in counsel, he will be greatly missed by all who came under his care, sought his advice, or were associated with him in any way.

The Society hereby expresses its appreciation of these accomplishments and sterling personal qualities of Dr. Tuttle by entering these minutes upon its records, and extends to Mrs. Tuttle its sincere sympathy in the loss of a lovable and congenial life-companion.

Committee:

FRANK K. HALLOCK,
E. STANLEY ABBOT, *Chairman.*

RESOLUTIONS ADOPTED BY THE STAFF OF THE SOMERVILLE HOSPITAL IN MEMORY OF DR. TIMOTHY J. SHANAHAN

WHEN the drama of Death touches our lives we all stop with a sense of utter helplessness.

But the Almighty Father has given the greatest of his gifts to us, his children, the gift of memory. Therefore: let us recall tonight one whom we loved, a kindly, courteous, charitable, ever-patient friend and colleague,—to whom no sacrifice for us was too great,—one whose influence lives even today, the influence of a well-lived and well ordered life which makes itself felt in our every act and decision.

With hearts filled with gratitude for the memory of Dr. Timothy J. Shanahan that is ours to enjoy, let us cherish the heritage of the true physician which he has left us, and let us honor him for what he achieved for the betterment of humanity in his chosen profession and career.

Whereas The Almighty and All Knowing Father of all has called to his eternal reward our beloved Dr. Timothy J. Shanahan and,

Whereas we his colleagues bow our heads in Christian submission and humility to the Divine will.

Be it resolved therefore:—

That we his colleagues and friends of the Staff of the Somerville Hospital extend our profound sympathy to his family and deeply deplore his loss, as we knew him best, loved him most,—for Dr. Shanahan was a man of great charm of manner, of unfailing kindness and unswerving devotion to the duty as well as to the art he loved so well.

DR. F. J. FITZPATRICK.
DR. HERBERT CHOLERTON.
DR. C. HOWARD DALTON.

CORRESPONDENCE

WEST END JEWISH COMMUNITY CENTER
6 North Russell Street
Boston, Mass.
Telephone Haymarket 2552

June 2, 1927.

Editor, Boston Medical and Surgical Journal:

The West End Neighborhood Conference met at the Health Unit on Thursday, May 26, at 4 o'clock to report on street play. Since Dr. Wilinsky was absent, Father Smith of St. Joseph's Rectory acted as chairman.

Mrs. Ida Z. Green, vice-chairman of the Street Play Committee, reported that the West End House, the Elizabeth Peabody House, St. Joseph's Rectory and the West End Jewish Community Center would each contribute pro rata to the employment of two full-time recreational workers to do street work during the summer. Mrs. Prager of the Maternity Clinic promised to contribute for the organization, but did not stipulate the amount. The Children's Aid Society will contribute $25, either through the agency or through Mr. Whitman. The following organizations

also promised to contribute: The Bulfinch Street Church, the Boston Music School Settlement, the West End Improvement Society, $50 through Dr. DuVally, the West End Community Center, $25.

Miss Frances Curtis asked that she be seen in reference to a contribution some time in June. This brings the pro rata to about $20 per agency.

The committee was empowered to proceed with their plans and to communicate with various colleges and schools for the selection of two capable recreational workers.

A motion was made and seconded that Lieutenant Hoppe of the Traffic Department be interviewed with a view to having traffic officers placed at the corners of Charles and Leverett Streets and Charles and Allen Streets during the day from the time school closes until it opens in the fall.

Motion made and seconded that the West End Neighborhood Conference go on record as approving of the necessity of an additional playground in the West End, this to be brought to the attention of the Boston City Council and the Mayor.

If there is any further information which you desire, I shall be glad to secure this for you.

Respectfully yours,

(Mrs.) Ida Z. Green,
Community Worker.

COPY OF A LETTER OF INSTRUCTIONS RESPECTING REGISTRATION UNDER THE HARRISON NARCOTIC LAW

Treasury Department—Internal Revenue Service
Office of the Collector Park Square Building
District of Massachusetts Boston, Mass.

ANNUAL NARCOTIC REGISTRATION RETURNS MUST BE FILED WITH THE COLLECTOR BY JULY 1 OR PENALTY ATTACHES

Enclosed herewith are the forms to be used in applying for reregistry under the Harrison Narcotic Law, as amended, for the year beginning July 1, 1927. If you desire to continue your present narcotic registration, these forms, properly executed, with the proper amount of tax or taxes, must be returned to this office so that they will reach here on or before July 1, 1927, or penalty will attach.

Persons registering in Class 1, 2, 3, or 4, are required to register in Class 5 also if they wish to dispense or handle exempt narcotic preparations. No additional payment of tax is necessary, but care should be taken to see that the Class 5 block on the application form is checked.

The inventory on Form 713 of narcotics on hand must be prepared under oath or affirmation, in duplicate, the original of which is to be kept on file by the maker, and the *duplicate* forwarded to the Collector. No inventory on this form is required for Class 1 and 2. AN INVENTORY MUST BE MADE FOR CLASS 5 IF REGISTRY IS DESIRED IN THAT CLASS. The inventory for Class 5 refers only to taxable narcotic drugs which might be set aside for use for manufacturing exempt preparations, and does not require the listing of ready-made preparations and remedies classed as exempt narcotic preparations. IN MOST INSTANCES NO TAXABLE NARCOTIC DRUGS ARE ON HAND IN CLASS 5. If such is the case, the inventory used for registration in one of the higher classes may also be used for Class 5, provided a notation—"no taxable drugs in Class 5"—is placed conspicuously on both the original and duplicate copies of the inventory.

Please read the forms carefully before executing them, so that your reregistration may be properly accomplished, and to avoid payment of penalty, return all forms with proper remittance in the form of *certified check*, postal money order, or cash, *not later than July 1, 1927.*

In the event that reregistration is not contemplated for any reason, this office should be so advised prior to July 1.

Thomas W. White, *Collector.*

NOTES ON NATIONAL AFFAIRS

(James A. Tobey, Special Correspondent)

During the latter part of January more attention than usual was devoted by Congress to matters of particular interest to the medical profession. A number of measures were passed, there was discussion on others, and several new bills of moment were introduced

PROGRESS

In one afternoon, January 17, the House adopted a flock of minor bills pertaining to medical affairs. They included: H. J. Res. 328, to provide $5000 for the expenses of delegates to the Congress of Military Medicine and Pharmacy, to be held at Warsaw, Poland; H. J. Res. 330, to provide $3000 for expenses of delegates to the Eighth Pan-American Sanitary Conference at Lima, Peru; H. J. Res. 331, to provide $2000 per annum for the membership of the United States in the International Office for the Protection of Childhood at Montevideo, Uruguay; H. R. 16023, for payments to members or former members of the military forces who provide blood for transfusions in government hospitals; H. R. 16077, relative to the content of army and navy rations; and S. 4537, to amend the Harrison Narcotic Act so that narcotic permits can be controlled in the Virgin Islands. On February 2 the House Committee on Ways and Means rejected the bill, H. R. 15601, for a medicinal liquor corporation.

NEW MEASURES

New bills of medical interest recently introduced in Congress include: S. 5449 for a permanent appropriation of $50,000 a year to the Gorgas Memorial Institute of Tropical and Preventive Medicine in Panama, provided the Republic of Panama completes construction of the laboratory on the site donated by it, and the South and Central American nations appropriate an amount of money aggregating at least one-half that supplied by the United States; S. 5496, to prevent the use of poisons in the denaturing of alcohol by the government, with which Senator Edwards had read into the *Record* the results of several poison cases, taken from medical journals; and S. 5434, to create the Philippine Leprosy Commission. A new bill for a medicinal liquor corporation has been introduced as H. R. 16841 by Representative Hull.

MEDICAL PRACTICE IN THE DISTRICT OF COLUMBIA

A bill to regulate the practice of medicine and midwifery in the District of Columbia has been reported in the Senate as S. 5405, and a similar measure is before the House as H. R. 16653. Since Congress acts as the legislative body for the seat of the national government, and since such laws as are infrequently passed for the District are sometimes looked upon as models, this particular bill deserves consideration by physicians everywhere, especially as it seems to be defective in many ways. In the Senate the legislation is sponsored by Dr. Copeland, who served as chairman of a sub-committee which held hearings on it. The report of these hearings indicates that Senator Copeland was anxious to please everybody, no matter how irregular in medical practice they may have been.

The bill provides for a board of medical examiners of nine, not more than four of whom may represent any one school of medicine, and this board is appointed by another board of medical education and licensure, composed of six physicians, not more than three of whom can belong to the same school, and three others, including a lawyer and an educator.

The examining board would hold annual examinations, but licenses would have to be granted to any osteopath or chiropractor who was in actual practice at the time of passage of the act, regardless of any qualifications or lack of them. Although the bill states that all applicants must be high school graduates and also have at least two years' colloge work in chemistry, biology and physics, these provisions may be waived in the case of any person who received a certificate of graduation prior to 1925 from a school maintaining standards acceptable to the board.

The proposed act contains a very broad definition of what is to be considered the practice of medicine, but this is somewhat nullified by an amendment which has been tacked on by Senator Copeland's committee, specifically exempting persons who use prayer or spiritual methods, and naturopaths, including those who employ clystertory treatments. Clystertory medicine (?) was divulged at the hearings to be a system of internal water bathing.

The regulation of medical practice in the District of Columbia is now bad enough, but it is difficult to see how this measure will improve it greatly. The principal effect will be to give a legal status to the cults, who now have none.

MILK IMPORTATION

The bill to regulate the importation of milk, H. R. 11768, which has passed the House, came in for considerable attention during January. Due to increased opposition which has developed in New York and New England, a number of new amendments were offered, chiefly by Senator Copeland, who again seemed eager to please all. Thus, the Secretary of Agriculture, who is to enforce the proposed act, would have been required to accept the certificate as to sanitary quality of the milk from the health departments of cities having field inspection services, but this was voted down on February 2. Another amendment would have exempted milk to be pasteurized from the provisions of the act. On January 31 Senator King characterized the whole measure as one which was arbitrary, dangerous and usurpatory.

CONGRESS CAN NOW CONSIDER MONKEY GLANDS

The appendix of that popular magazine, the *Congressional Record*, for January 29 has all the aspect of a medical journal, for it contains a ten-page article entitled "Rejuvenation of the Bodily and Sexual Powers of Both Men and Women by the Voronoff (Monkey Glands) and Steinach Methods—A Ray of Hope and a Note of Warning." This contribution to legislative progress emanates from the pen of Representative Kindred of New York, who is one of the few physicians in the House.

Another article in the appendix of one of the *Congressional Records*, that of January 6, touches upon a different public health matter, the health of the Indians, which is alleged by Representative Frear to be much worse than it should be, due to neglect and mismanagement on the part of the Commissioner of Indian Affairs.

MONTHLY REPORT OF CERTAIN COMMUNICABLE DISEASES FOR MASSACHUSETTS

Diseases	Cases in entire population				Case rates per 100,000 population		
	Mar., 1927	Mar., 1926	Prosodemic index	Ratio of incidence to index	Mar., 1927	Mar., 1926	Expected rate‡
All causes	10,403	15,049	—	—	243.6	356.7	—
Anterior poliomyelitis	3	5	8*	.3†	.1	.1	.2
Diphtheria	428	304	445*	.9†	10.0	7.2	10.4
Measles	1,297	5,490	3,656*	.3†	30.4	130.2	85.6
Pneumonia, lobar	564	953	679*	.8†	13.2	22.5	15.9
Scarlet fever	2,517	1,194	1,314*	1.9†	58.9	28.3	30.7
Tuberculosis, pulmonary	490	477	360*	1.4†	11.5	11.3	8.4
Typhoid fever	44	20	22*	2.0†	1.0	.4	.5
Whooping cough	760	2,179	975*	.7†	17.8	51.7	22.8
Chickenpox	1,167	738	—	—	27.3	17.4	—
German measles	68	1,067	—	—	1.6	25.2	—
Influenza	89	1,172	—	—	2.1	27.7	—
Mumps	2,027	518	—	—	47.5	12.2	—
Tuberculosis, other forms	61	85	—	—	1.4	2.0	—

*This index is an attempt to estimate the number of cases based on the trend during the past years which can be expected to occur, and is for the purpose of comparison with the number of cases which actually did occur.

†This ratio expresses how prevalent the disease is compared with the index mentioned above; 1.0 indicates that the actual number of cases equals the expected number. A larger number means a greater prevalence, and a smaller number a lesser prevalence than expected. Thus, 2.0 would indicate twice the expected number of cases, and .5 half the expected number of cases. The methods used to determine the index will be described in detail in an early issue of the JOURNAL.

‡Calculated from the Prosodemic Index.

RESUME OF COMMUNICABLE DISEASES MARCH, 1927

GENERAL PREVALENCE

Disease prevalence for March was the lowest since 1922. This is due principally to the very low rate for measles.

Scarlet fever had the largest number of cases reported for any month, in any year, on record. More cases of mumps were reported than during any other March. Typhoid fever, pulmonary tuberculosis and chickenpox have been more prevalent than expected, while German measles, influenza and anterior poliomyelitis have been unusually low.

The typhoid fever rate is low if cases from two epidemics are deducted. With the exception of 1926, fewer cases of diphtheria have been reported than in any other March in the past fifteen years.

RARE DISEASES

Anterior poliomyelitis was reported from Boston, 1; Shirley, 1; Worcester, 1; total, 3.

Dog-bite requiring anti-rabic treatment was reported from Attleboro, 1; Boston, 2; Cambridge, 1; Chelmsford, 1; Chelsea, 1; Danvers, 2; Hingham, 2; Lowell, 6; Natick, 1; Newton, 5; Peabody, 3; Revere, 6; Stoughton, 5; Winthrop, 1; total, 37.

Encephalitis lethargica was reported from Attleboro, 1; Boston, 4; Cambridge, 1; Chelsea, 1; Chicopee, 1; Dighton, 1; Lynn, 1; New Bedford, 2; Northampton, 1; Pittsfield, 1; Stoneham, 1; total, 15.

Epidemic cerebrospinal meningitis was reported from Boston, 2; Eastham, 1; Fall River, 1; Lawrence, 1; Lowell, 1; total, 6.

Pellagra was reported from Boston, 1.

Septic sore throat was reported from Boston, 7; Fall River, 1; Lowell, 1; Taunton, 1; Wakefield, 1; total, 11.

Tetanus was reported from New Bedford, 1.

Trachoma was reported from Boston, 2.

RESUME OF COMMUNICABLE DISEASES

APRIL, 1927

GENERAL PREVALENCE

Disease prevalence for April was the lowest since 1922. This is due principally to the very low rate for measles.

Scarlet fever had the highest number of cases reported for any April on record. However, since March there has been a drop of about 20 per cent. in the incidence. Mumps and chickenpox were reported in larger numbers than for any April in the history of the department. Both diseases are declining from the peak, however.

German measles has had the lowest incidence for any April since 1922, and pneumonia for any April since 1923. Influenza, whooping cough, anterior poliomyelitis and diphtheria remain at a moderately low point. Typhoid fever is returning to a normal rate from the high incidence due to three epidemics during the winter.

RARE DISEASES

Actinomycosis was reported from Boston, 1.

Anterior poliomyelitis was reported from New Bedford, 1; Springfield, 1; Wakefield, 2; total, 4.

Anthrax was reported from Haverhill, 1; Lynn, 1; total, 2.

Dog-bite requiring anti-rabic treatment was reported from Billerica, 1; Boston, 5; Brockton, 3; Lowell, 10; Revere, 7; Somerville, 1; Waltham, 1; Winthrop, 3; total, 31.

Encephalitis lethargica was reported from Boston, 2; Mansfield, 1; Waltham, 1; West Springfield, 1; Worcester, 1; total, 6.

Epidemic cerebrospinal meningitis was reported from Boston, 3; Cambridge, 1; Fall River, 1; Holyoke, 1; Lynn, 1; Peabody, 1; Springfield, 1; West Springfield, 1; total, 10.

Pellagra was reported from Bridgewater, 1; Melrose, 1; total, 2.

Septic sore throat was reported from Boston, 6; Fall River, 8; Greenfield, 1; Hopedale, 1; Leominster, 1; Northampton, 1; Quincy, 1; Worcester, 2; total, 21.

Tetanus was reported from Cambridge, 1; North Attleboro, 1; total, 2.

Trachoma was reported from Boston, 2; Chelsea, 1; total, 3.

MONTHLY REPORT OF CERTAIN COMMUNICABLE DISEASES

Diseases	Cases in entire population Apr., 1927	Apr., 1926	Prosodemic index	Ratio of incidence to index	Case rates per 100,000 population Apr., 1927	Apr., 1926	Expected rate‡
All causes	9,080	11,764	—	—	212.7	278.9	—
Anterior poliomyelitis	4	5	7*	.6†	.1	.1	.2
Diphtheria	381	228	394*	.9†	8.9	5.4	9.2
Measles	1,401	3,776	4,884*	.3†	32.8	89.5	114.3
Pneumonia, lobar	512	933	532*	.9†	11.9	22.1	12.5
Scarlet fever	2,001	1,103	1,304*	1.5†	46.9	26.1	30.5
Tuberculosis, pulmonary	446	568	396*	1.1†	10.4	13.5	9.3
Typhoid fever	26	22	20*	1.3†	.6	.5	.5
Whooping cough	625	1,376	872*	.7†	14.6	32.6	20.4
Chickenpox	971	440	—	—	22.7	10.4	—
German measles	92	1,295	—	—	2.1	30.7	—
Influenza	65	625	—	—	1.5	14.8	—
Mumps	1,720	471	—	—	40.3	11.2	—
Tuberculosis, other forms	68	84	—	—	1.6	1.9	—

*This index is an attempt to estimate the number of cases based on the trend during the past years which can be expected to occur, and is for the purpose of comparison with the number of cases which actually did occur.

†This ratio expresses how prevalent the disease is compared with the index mentioned above; 1.0 indicates that the actual number of cases equals the expected number. A larger number means a greater prevalence, and a smaller number a lesser prevalence than expected. Thus, 2.0 would indicate twice the expected number of cases, and .5 half the expected number of cases. The methods used to determine the index will be described in detail in an early issue of the JOURNAL.

‡Calculated from the Prosodemic Index.

CONNECTICUT DEPARTMENT OF HEALTH

MORBIDITY REPORT FOR THE WEEK ENDING MAY 21, 1927

Diphtheria	22	Conjunctivitis, infectious	1
Last week	20	German measles	26
Diphtheria bacilli carriers	3	Influenza	2
Scarlet fever	99	Mumps	43
Last week	105	Pneumonia, lobar	39
Measles	44	Poliomyelitis	1
Last week	58	Tuberculosis, pulmonary	30
Whooping cough	14	Tuberculosis, other forms	3
Last week	67	Gonorrhea	36
Bronchopneumonia	35	Syphilis	26
Cerebrospinal meningitis	1		
Chickenpox	141		

MORBIDITY REPORT FOR THE WEEK ENDING MAY 28, 1927

Diphtheria	36	Dysentery, amoebic	1
Last week	22	Encephalitis, epidemic	1
Diphtheria bacilli carriers	2	German measles	31
Scarlet fever	76	Influenza	1
Last week	99	Mumps	75
Typhoid fever	1	Pneumonia, lobar	39
Last week	0	Septic sore throat	3
Measles	57	Tuberculosis, pulmonary	26
Last week	44	Tuberculosis, other forms	3
Whooping cough	18	Typhus fever	1
Last week	14	Gonorrhea	51
Bronchopneumonia	26	Syphilis	32
Chickenpox	139		

DISEASE INCIDENCE IN CONNECTICUT
WEEK ENDING MAY 21

DISEASE	1927					1926			
	Week ending Apr. 30	Week ending May 7	Week ending May 14	Week ending May 21	Average cases reported for week corresponding to May 21 for past 7 yrs.	Week ending May 1	Week ending May 8	Week ending May 15	Week ending May 22
Actinomycosis	-	-	-	-	-	-	-	-	-
Anthrax	-	-	-	-	-	-	-	-	-
Botulism	-	-	-	-	-	-	-	-	-
Cerebrospinal Meningitis	-	1	-	1	1	1	1	1	2
Chickenpox	78	112	96	141	45	44	61	63	66
Conjunctivitis Infectious	-	1	-	1	3	1	1	-	1
Diphtheria	26	22	20	22	38	19	25	16	27
Dysentery, Amoebic	-	-	-	-	-	-	-	-	-
Dysentery, Bacillary	-	-	-	-	-	2	-	1	-
Encephalitis, Epidemic	-	-	-	-	1	1	1	1	-
Favus	-	-	-	-	-	-	-	-	-
German Measles	17	34	10	26	15	10	121	43	23
Hookworm Infection	-	-	-	-	-	-	-	-	-
Influenza	3	4	3	2	3	20	9	12	4
Leprosy	-	-	-	-	-	-	-	-	-
Malaria	1	1	-	-	-	-	1	-	-
Measles	50	51	58	44	271	726	711	522	471
Mumps	53	45	36	43	86	6	9	9	12
Paratyphoid Fever	1	-	-	-	1	-	-	-	-
Pneumonia, Broncho*	26	26	34	35	27*	63	42	49	39
Pneumonia, Lobar	44	75	34	39	29	69	54	49	32
Poliomyelitis	1	-	-	1	-	-	-	-	-
Scarlet Fever	99	103	105	99	81	89	78	95	81
Septic Sore Throat	6	3	3	-	-	1	-	-	1
Smallpox	-	-	-	-	2	-	-	-	-
Tetanus	1	-	-	-	-	-	-	-	-
Trachoma	-	-	-	-	-	-	-	-	-
Trichinosis	-	-	-	-	-	-	-	-	-
Tuberculosis, Pulmonary	39	35	38	30	34	41	24	31	50
Tuberculosis (o.f.)	7	6	6	3	3	7	-	-	1
Typhoid Fever	1	1	-	-	9	1	3	-	9
Typhus Fever	-	-	-	-	-	-	-	-	-
Whooping Cough	31	60	67	14	51	39	56	54	62
Gonorrhoea	8	20	15	36	20	5	21	14	57
Syphilis	14	16	12	26	32	9	31	26	36

*Average for two years. Made reportable January 1, 1925.

Remarks: No cases of cholera, Asiatic, glanders, plague, rabies in humans and yellow fever during the past seven years.

NEWS ITEMS

CONDEMN ACTION OF SENATOR PERHAM—The Middlesex North District Medical Society has condemned two actions of Senator Walter Perham of the Eighth District in which local physicians claim he has acted contrary to the best needs of public health. Its members specifically censure Senator Perham for his votes on the compulsory vaccination bill and the chiropractic bill.

At a meeting of the society at the Y. M. C. A. on Thursday, the secretary, Dr. Theodore A. Stamas, was directed to send the following letter to Senator Perham expressing the feelings of the district physicians:

Hon. Walter Perham,
Chelmsford Center, Mass.

Dear Senator:

The Middlesex North District Society, a branch of the Massachusetts Medical Society, at its quarterly meeting held in Lowell, unanimously condemned the stand taken by you at the last session of the State Legislature, regarding certain bills affecting public health matters.

Following your conference with the District Medical Society last year it was felt that the arguments presented should have warranted a favorable action on your part on the compulsory vaccination bill this year.

Your vote supporting the chiropractic bill represents an effort to introduce a double standard of fitness to practice the healing art which the society believes would be detrimental to the best interests of public health in this Commonwealth.

Respectfully yours,
T. A. Stamas, *Secretary.*

—*Lowell Sun, Saturday, May 7.*

HALDANE'S NEPHEW SUBMITS TO VIVISECTION—Viscount Haldane, in a recent debate in the House of Lords, said that he knew a man who voluntarily submitted to a vivisection experiment which could not be made under an anesthetic and which was not allowed to be made on animals. He did not reveal the man's name. *The Daily Mail* recently announced that the man was Viscount Haldane's nephew, J. B. S. Haldane, a lecturer in biochemistry at Cambridge University.

The experiment was conducted by Professor Fraser

of St. Bartholomew's Hospital in London and had as its purpose the production in Mr. Haldane of a condition of acidosis, an acidic state of the blood occurring in diabetes.

The acidosis having been established, Professor Fraser took blood from Mr. Haldane's femoral artery and was able to determine the exact change in the blood's alkalinity. The details of the experiment will be published.

Mr. Haldane had previously tried without success to produce acidosis in himself by swallowing various acids.

He is the son of John Scott Haldane, a widely known scientist, who himself has given blood for analysis after breathing quantities of carbonic acid.

J. B. S. Haldane has experimented upon himself many times at the risk of his own life in attempting to eliminate disease. He ate ounces of ammonium chloride to prove its utility in lockjaw, and thus has saved the lives of thousands of children. He pedalled a bicycle in an airtight glass case until he collapsed. He was one of the first to test gas masks under actual war conditions.

He is an expert on chemical warfare and his book, "Daedalus, or Science and the Future," published in 1924, attracted world-wide attention. In "Daedalus" he predicted that scientific experiments would bring about the abolition of disease, which, he said, would make death "a physiological event like sleep." He also predicted that scientists would learn to create human beings in the laboratory, doing away with birth.

During the war he fought in France and in Mesopotamia and was gassed.—*New York Times.*

NOTICES

WHATS AND WHYS OF CANCER

Editor, Boston Medical and Surgical Journal:

Enclosed please find a pamphlet entitled the "Whats and Whys of Cancer" which we have recently had printed and which was prepared by Dr. Herbert L. Lombard of our staff. It gives in question form some 28 points in regard to cancer which are being brought up constantly and seems to me pretty good. I thought you might be willing to run it in the JOURNAL with the note that any physicians who desire to use the pamphlet could have any number by applying to us. If this could be read by every person over 40 (or is it 35 now?) I should feel that we had perhaps started in cancer. I do not think it approaches State medicine, either!

Cordially yours,

GEORGE H. BIGELOW, M.D.,
Commissioner of Public Health.

WHATS AND WHYS OF CANCER

These twenty-eight questions are the ones most frequently asked the State Department of Public Health regarding cancer. The answers are not intended to be exhaustive but rather to give in concise language the significant information.

1. *Is cancer on the increase?*

Cancer is on the increase in Massachusetts, and probably is throughout the world. The crude death rate increased in Massachusetts between 1910 and 1925 from 90.0 to 125.4 per 100,000 population. The actual number of deaths per year increased from 3028 to 5196 in Massachusetts.

2. *How does the cancer rate of Massachusetts compare with other States?*

Massachusetts had the highest cancer rate of any State in the Union when the average adjusted rates for the years 1920-1923 were compared. It was closely followed by Rhode Island and New York States.

3. *Why does Massachusetts have this high rate?*

It is impossible at the present time to give a definite answer, but the following facts are influential: there is apparently more cancer in communities where the population is dense than in rural communities. Massachusetts has a large part of its population in thickly populated districts. The standard of the medical profession is high in Massachusetts and cases are probably more accurately diagnosed than in some other States.

4. *How does cancer compare with other diseases as a cause of death?*

The crude rates per 100,000 for some of the more important causes of death in Massachusetts were as follows for the years 1920 and 1925:

Disease	1925	1920
Heart disease	214.6	165.0
Pneumonia	126.5	164.8
Cancer	124.5	116.1
Apoplexy	118.1	108.4
Nephritis	73.2	92.0
Tuberculosis	69.6	94.6

5. *How many individuals in Massachusetts will die of cancer in 1927?*

Approximately 5500. This figure was obtained from a study of the cancer trend.

6. *How many individuals in Massachusetts will die in 1927 from the more important types of cancer?*

In 1927 approximately 1100 individuals will die from cancer of the stomach; 700 from cancer of the intestines; 650 from cancer of the uterus; 500 from cancer of the breast; 450 from cancer of the liver; 300 from cancer of the mouth; 250 from cancer of the rectum; 115 from cancer of the skin; and the remainder, 1335, from cancer of various other organs.

7. *What is the chance of an individual over 40 dying of cancer?*

At the present time, of all deaths among males over the age of 40, two out of every 18 are from cancer; and of all females in the same age group, three out of every 19 are from this disease.

8. *Is cancer more prevalent among males than females?*

About 60 per cent. of cancer deaths are among females.

9. *At what age is cancer common?*

The death rate from cancer in the age group 30-39, in the five-year period 1918-1922 was 33 per 100,000; in the group 40-49 it was 121; in the group 50-59 it was 303; 60-69, 572; 70-79, 929; and over 80, 1229. The older one grows the greater is the chance of dying of cancer; but owing to the different populations in the different age groups the maximum number of deaths occur in the 60-69 group.

10. *What is the duration of unoperated cancer?*

The Massachusetts death records show that in unoperated cancer cases the interval between first symptoms and death is:

Type of Cancer	Duration
Stomach group	15.8 months
Buccal cavity	17.3 months
Cancer of other organs	17.3 months
Peritoneum, Intestine group	18.8 months
Unspecified as to location	21.2 months
Female genitals	22.9 months
Male genitals	25.4 months
Breast	35.7 months
Skin	37.6 months
Average of all forms	20.0 months

11. *What is the duration of operated cancer?*

It is difficult to determine the average duration of operated cancer as many patients are lost sight of after they leave hospitals. Major Greenwood, using English figures, stated: "The normal expectancy of life of a woman aged 55 is 18.87 years, the expectation of life of a woman with untreated cancer of the breast is 3.25 years, the expectation of life of a woman operated on under 'average' conditions is 5.74 years, and of a woman operated on under the best of conditions is 12.93 years." This shows the hopeful aspect of early operation.

12. *How long does the average patient delay before consulting a physician?*

In Massachusetts the doctors state there is an average interval of eight months between the first symptoms noted by the patient and the first consultation with a physician. Every effort should be made to shorten this interval.

13. *Why should a cancer patient seek advice early?*

Because the earlier the disease is diagnosed, the better the chance of cure. In one group of cases studied the chance of cure decreased 16 per cent. with each month of delay before operation. Early adequate treatment of all cancer would increase the cure 200 per cent.

14. *Are all races equally susceptible to cancer?*

Apparently not, although our evidence is not complete. In Massachusetts, the Italians apparently have less cancer than any other nationality, while the northern European races have much higher rates than the native born.

15. *What is cancer?*

Cancer is at first a local disease which tends to spread from its point of origin to other parts of the body. Cells in some part of the body begin to multiply. At this stage the process is purely local and if the cells are completely removed there will be no further recurrence of the cancer. If not removed, some cells may wander to other parts of the body and by increasing in number form new growths there. If the patient waits until this has taken place, the chance for a complete cure of the disease has lessened materially.

16. *Is cancer a hopeless disease?*

Cancer is not a hopeless disease. If eradicated early the disease can be cured.

17. *What is the cause of cancer?*

At the present time the causation of cancer is still unknown. While each contribution brings the ultimate discovery nearer, it is still in the future.

18. *Is cancer contagious?*

The present state of our knowledge gives no indication that cancer is contagious. While it is possible that further experimentation may lead to a different view the probability is strongly against it, and for all practical purposes cancer should not be considered contagious.

19. *Is cancer hereditary?*

"Cancer itself is not hereditary, although a certain predisposition or susceptibility to cancer is apparently transmissible through inheritance. This does not signify that because one's parent or parents or other members of the family have suffered from cancer, cancer will necessarily appear in other persons of the same succeeding generation." (Mohonk Cancer Symposium.)

20. *What is the relation of chronic irritation to cancer?*

It has been found that cancer frequently develops at the seat of some chronic irritation, such as a jagged tooth. All potential chronic irritations should therefore be avoided.

21. *What can we do in the way of cancer prevention?*

Lead hygienic lives and avoid all forms of chronic irritation. This includes more exercise, less food, improved dentistry, abstinence or limited use of tobacco and alcohol, treatment of chronic mastitis, and repair of lacerated cervix.

22. *What are the warning signs of cancer?*

A lump in any part of the body, and abnormal discharge, a sore that does not readily heal, a deformity such as retraction of the nipple, a wart or mole that increases in size, a marked loss of weight are among the symptoms which should send an individual to his doctor. These may not be cancer, but they justify a suspicion and medical advice should, therefore, be obtained when they occur.

23. *Is cancer painful in its early stages?*

Early cancer never causes pain. The belief that it does has resulted in much delay among cancer patients in seeking medical advice.

24. *How can cancer be cured?*

By complete removal of all cancer cells either through surgery or radiation.

25. *What are the so-called cancer cures?*

Various forms of treatment for cancer are advanced from time to time. These include pastes, electricity, sera, anti-toxins, and medicines. Some are recommended by physicians, others by laymen. In a few cases following such treatment patients' conditions have improved and "cures" have been announced. In the majority of these cases, however, the disease was not cancer. If a form of treatment does improve a few cases of a disease, it does not necessarily follow that it is the best treatment. From the wealth of statistical material which is available it is known that the only proved forms of treatment are surgery and radiation. All other lines of treatment are either fraudulent or in the experimental stage. Beware of a cancer treatment that is "secret."

26. *What are irregular practitioners and why are they a menace to cancer patients?*

Irregular practitioners are persons who for gain or for other reasons resort, in the treatment of disease, to practices which are not ethical. Cancer patients should not rely on the advice of such persons. The family physician and his consultants are the men on whom to place reliance.

27. *Why are consultations necessary in cancer?*

The average physician in Massachusetts sees between four and five cancer cases per year, and these of different types. As each type demands a different kind of skill in its diagnosis, a physician seeing less than one case a year of a given type cannot be expert. It is therefore advisable for a physician who does not specialize in the type of cancer under suspicion to refer the patient to a man who sees many cases of this type.

28. *Why are State-aided cancer clinics valuable?*

Cancer clinics will first give an opportunity for individuals to receive expert diagnostic advice. The clinics will be composed of a group of physicians who are all thinking in terms of cancer. Any individual may receive an opinion from this group regardless of his financial standing. The staff of the clinic will be composed of a group, each one of whom will see many cases of the type of cancer peculiar to his own specialty. The advantage to the practicing physician of obtaining such consultation service is enormous. It not only assures his patient of sound advice, but improves his own knowledge of cancer through his

contact with the clinic group. The cancer interest among the profession will be further increased by consultation visits supplemented by forum discussions by experts from the larger center. Such group specialization in fractures, goitre therapy, etc., has accomplished much in improved quality of service. It will do the same in cancer.

UNITED STATES CIVIL SERVICE EXAMINATION

The United States Civil Service Commission announces the following open competitive examination:

Junior Medical Officer (Interne)

Applications for junior medical officer (interne) must be on file with the Civil Service Commission at Washington, D. C., not later than June 30.

The examination is to fill vacancies in Veterans' Bureau Hospitals throughout the United States, and in positions requiring similar qualifications.

The entrance salary in the field service of the Veterans' Bureau is $1,860 to $2,400 a year, without allowances, or $1,260 to $1,860 a year with quarters, subsistence and laundry, the entrance salary within the range stated depending upon the qualifications of the appointee as shown in the examination and the duty to which assigned.

The duties, under immediate supervision, are to admit patients, take histories, make physical and mental examinations and record findings; to make ward rounds of inspection, note charts, record observations; to prescribe for minor ailments or for acute emergency cases and to dispense medicine in emergency; to perform minor surgical operations and to assist at major operations and in redressing; to administer anesthetics; to make routine laboratory tests and analyses; to assist at outpatient clinics in dressing and in administering vaccines; to keep records, make up case histories, answer correspondence relating to patients, and compile statistics requiring medical training.

Competitors will not be required to report for examination at any place, but will be rated on their education, training and experience.

Full information may be obtained from the United States Civil Service Commission, Washington, D. C., or the secretary of the Board of United States Civil Service Examiners at the postoffice or custom house in any city.

The United States Civil Service Commission announces the following open competitive examination:

Assistant Medical Officer
Associate Medical Officer
Medical Officer
Senior Medical Officer

Applications will be rated as received by the United States Civil Service Commission at Washington, D. C., until June 30.

Appointments from these examinations will be made to the Veterans' Bureau, the Indian Service, the Public Health Service, the Coast and Geodetic Survey, the Panama Canal Service, the Departmental Service at Washington, and other branches.

The demand for specialized medical officers in the Federal service is constant and the supply of eligibles is rarely equal to the demand. There is opportunity for appointment of specialists in practically all branches of the profession.

Applicants will not be required to report for written scholastic tests, but will be rated on their education and training, and their practical experience.

Full information may be obtained from the United States Civil Service Commission, Washington, D. C., or the secretary of the Board of United States Civil Service Examiners at the postoffice or custom house in any city.

TOXICOLOGIST

Announcement No. 4522 (Unassembled)

The United States Civil Service Commission announces an open competitive examination for toxicologist. A vacancy in this position in the Chemical Warfare Service, Edgewood Arsenal, Edgewood, Md., at a salary ranging from $3800 to $5000 a year, and vacancies which may occur in positions requiring similar qualifications at these or higher or lower salaries, will be filled from this examination unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer or promotion.

Receipt of applications will close July 2, 1927.

Range in Salary—The entrance salary within the range stated will depend upon the qualifications of the appointee as shown in the examination and the duty to which assigned.

Citizenship and Sex—All citizens of the United States who meet the requirements, both men and women, may enter this examination; appointing officers, however, have the legal right to specify the sex desired in requesting certification of eligibles.

False Statements—False statements in applications concerning age or other matters affecting an applicant's eligibility will result in cancellation of examination and debarment from future examinations, and removal from service in case of appointment.

Duties—The duties consist of experimental work on the physiologic action of toxic compounds.

Subjects and Weights—Competitors will not be required to report for examination at any place, but will be rated on the following subjects, which will have the relative weights indicated: (1) Education, training and experience, 70; (2) Theses or publications, to be filed with application, 30; total, 100.

For particulars apply to the Secretary of the Fourth United States Civil Service District, 1723 F Street, N. W., Washington, D. C.

SPECIALIST IN PATHOLOGY NEEDED AT VETERANS' BUREAU HOSPITAL, KNOXVILLE, IOWA

ENTRANCE SALARY $3,800 A YEAR

The United States Veterans' Bureau Hospital at Knoxville, Iowa, is in need of a specialist in pathology. Applications for the examination for this position are now being received by the United States Civil Service Commission under its general announcement for medical officers (Examination Announcement No. 43).

The entrance salary is $3,800 a year. Advancement depends upon individual efficiency, increased usefulness, and the occurrence of vacancies in higher positions. The highest salary paid to senior medical officers is $6,000 a year. The position of senior medical officer is seldom filled from a register of eligibles, but almost invariably by the promotion of medical officers already on duty.

Competitors will not be required to report for examination at any place, but will be rated on their education and training (30 per cent.) and their experience (70 per cent.).

Full information regarding requirements for entrance to the examination is given in Examination Announcement No. 43, which, together with Application Form 2600, may be obtained from the United States Civil Service Commission, Washington, D. C., the secretary of the United States Civil Service Board, Custom House, Boston, Mass., New York, N. Y., New Orleans, La., or St. Louis, Mo., or the secretary of the United States Civil Service Board, Postoffice, Atlanta, Ga., Cincinnati, Ohio, Chicago, Ill., St. Paul, Minn., Seattle, Wash., San Francisco, Calif., or Denver, Colo.

ARTICLES APPROVED BY THE COUNCIL ON PHARMACY AND CHEMISTRY

May 27, 1927.

Editor, Boston Medical and Surgical Journal:

In addition to the articles enumerated in our letter of April 20, the following have been accepted:

Abbott Laboratories
- Neonal

Certified Laboratory Products
- Ethylene—C. L. P.

Cutter Laboratory
- Alkali Weed Pollen Extract—Cutter
- All Scale Pollen Extract—Cutter
- Box Elder Pollen Extract—Cutter
- Burning Bush Pollen Extract—Cutter
- Corn Pollen Extract—Cutter
- Foxtail Pollen Extract—Cutter
- Mountain Cedar Pollen Extract—Cutter
- Tumbleweed Pollen Extract—Cutter
- Western Water Hemp Pollen Extract—Cutter

Fairchild Bros. & Foster
- B. Acidophilus Milk—Fairchild

Horlick's Malted Milk Corporation
- Horlick's Maltose-Dextrin Milk Modifier

H. K. Mulford Company
- Lamb's Quarters Pollen Extract (Glycero-Saline)—Mulford
- Ragweed Pollen Extract (Glycero-Saline)—Mulford
- Timothy Pollen Extract (Glycero-Saline)—Mulford
- Wormwood Pollen Extract (Glycero-Saline)—Mulford

Parke, Davis & Co.
- Alfalfa Pollen Protein Extract Diagnostic—P., D. & Co.
- Kidney Bean Protein Extract—P., D. & Co.
- Typhoid Vaccine (Prophylactic)
- Typhoid-Paratyphoid Vaccine (Prophylactic)

E. R. Squibb & Sons
- Ovarian Hormone—Squibb

Swan-Myers Company
- Ampoules Ephedrine Hydrochloride—Swan-Myers, 0.05 gm., 1 cc.
- Capsules Ephedrine Hydrochloride—Swan-Myers, 0.025 gm.
- Solution Ephedrine Hydrochloride—Swan-Myers, 3%.

Yours truly,

W. A. PUCKNER, *Secretary,*

Council on Pharmacy and Chemistry.

UNITED STATES PUBLIC HEALTH SERVICE

CHRONOLOGICAL LIST OF CHANGES OF DUTIES AND STATIONS OF COMMISSIONED AND OTHER OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

MAY 4, 1927

Surgeon G. C. Lake—Directed to proceed as may be necessary from time to time from Washington, D. C., to New York City, and return, in connection with venereal disease investigations—April 22, 1927.

Surgeon J. G. Wilson—Directed to proceed from El Paso, Texas, to Guadalupe, Texas, and return, when necessary during the fiscal year 1927, in connection with the medical inspection of aliens—April 25, 1927.

A. A. Surgeon Irving McNeil—Directed to proceed from El Paso, Texas, to Guadalupe, Texas, and return, when necessary during the fiscal year 1927, in connection with the medical inspection of aliens—April 25, 1927.

Assistant Surgeon F. R. Brunot—Relieved from duty at Angel Island, Calif., and assigned to duty at United States Quarantine Station, Manila, P. I., April 26, 1927.

Assistant Surgeon E. R. Coffey—Directed to proceed from Jefferson City, Mo., to such places in the State of Missouri, as may be necessary, and return, to coöperate with State and local health authorities in connection with the prevention of the interstate spread of epidemic diseases in the flooded areas—April 26, 1927.

Assistant Surgeon E. R. Pelikan—Relieved from duty at New Orleans, La., and assigned to duty with the United States Coast Guard—April 26, 1927.

A. A. Surgeon Boyd G. Barentine—Directed to proceed from Carville, La., to such places in Yancey and Polk Counties, North Carolina, as may be necessary to obtain the custody of a leper, returning with him to the Federal Leprosarium at Carville—April 26, 1927.

Surgeon K. E. Miller—Directed to proceed from New Orleans, La., to such places in the State of Louisiana as may be necessary, and return, to coöperate with State and local health authorities in connection with the prevention of the interstate spread of epidemic diseases in the flooded areas—April 27, 1927.

Surgeon J. W. Mountin—Directed to proceed from Jefferson City, Mo., to Little Rock, Ark., and such other places in the flooded area as may be necessary, and return, to coöperate with State and local health authorities in the prevention of the interstate spread of epidemic diseases—April 27, 1927.

A. A. Surgeon J. W. Levy—Directed to proceed from Little Rock, Ark., to such places in the State of Arkansas as may be necessary, and return, to cooperate with State and local health authorities in connection with the prevention of the interstate spread of epidemic diseases in the flooded areas—April 27, 1927.

A. A. Surgeon W. K. Sharp, Jr.—Directed to proceed from Nashville, Tenn., to such places in the State of Tennessee as may be necessary, and return, to coöperate with State and local health authorities in connection with the prevention of the interstate spread of epidemic diseases in the flooded areas—April 27, 1927.

Surgeon A. R. Sweeney—Directed to proceed from Gallops Island, Boston, Mass., to Plymouth, Beverly, Salem, Lynn and such other subports in the Customs Collection District under the Collector of Customs at Boston, Mass., as may be necessary, and return, in connection with the investigation of quarantine transactions at those ports—April 28, 1927.

Associate Sanitary Engineer A. L. Dopmeyer—Directed to proceed from Memphis, Tenn., to such places in Mississippi as may be necessary, and return, to coöperate with State and local health authorities in connection with the prevention of the interstate spread of epidemic diseases in the flooded areas—April 28, 1927.

Associate Sanitary Engineer E. H. Gage—Directed to proceed from New Orleans, La., to Cleveland, Miss., and such other places in the State of Mississippi as may be necessary, and return, to coöperate with State and local health authorities in connection with the prevention of the interstate spread of epidemic diseases in the flooded areas—April 28, 1927.

Surgeon Joseph Goldberger—Directed to proceed from Washington, D. C., to Milledgeville, Ga., May 2, and return, in connection with nutrition studies—April 29, 1927.

Surgeon R. M. Grimm—Relieved from duty at Ellis Island, N. Y., and assigned to duty at the Hygienic Laboratory, Washington, D. C.—April 29, 1927.

Associate Sanitary Engineer W. H. W. Komp—Bureau orders of April 16, 1927, directing him to proceed from Greenwood, Miss., to Mound, La., in connection with field investigations of malaria, revoked—April 29, 1927.

Assistant Surgeon D. A. Hoxie—Relieved from duty at Gallops Island, Boston, Mass., and assigned to duty at Ellis Island, N. Y.—April 29, 1927.

Assitant Surgeon W. H. Sebrell—Relieved from duty at Rosebank, S. I., N. Y., and assigned to duty at United States Quarantine Station, Gallops Island, Boston, Mass.—April 29, 1927.

Assistant Surgeon W. H. Sebrell—Relieved from duty at Boston, Mass., and asisgned to duty at Ellis Island, N. Y.—April 29, 1927.

Assistant Surgeon G. J. Van Beeck—Relieved from duty at Washington, D. C., and assigned to duty at Ellis Island, N. Y.—April 29, 1927.

Assistant Surgeon R. A. Vonderlehr—Relieved from duty at Ellis Island, N. Y., and assigned to duty at the Hygienic Laboratory, Washington, D. C.—April 29, 1927.

Junior Pharmacist Charles H. Simpson, Jr.—Directed to proceed from Newburgh, N. Y., to Stapleton, N. Y., for assignment to duty at U. S. M. H. No. 21—April 29, 1927.

Associate Sanitary Engineer I. W. Mendelsohn—Directed to proceed from Chicago, Ill., to Sikeston, Mo., and such other places in the State of Missouri as may be necessary, and return, to coöperate with State and local health authorities in connection with the prevention of the interstate spread of epidemic diseases in the flooded areas—April 30, 1927.

Assistant Surgeon A. J. Aselmeyer—Relieved from duty at Ellis Island, N. Y., and assigned to duty at the Hygienic Laboratory, Washington, D. C.—April 30, 1927.

Surgeon L. R. Thompson—Directed to proceed from Washington, D. C., to Johnstown, Pa., during the week of May 2, and return, in connection with field investigations of industrial hygiene—May 2, 1927.

BOARDS CONVENED

A board of officers convened to meet at New London, Conn., May 3, 1927, to determine the physical eligibility of an officer for promotion in the United States Coast Guard—April 29, 1927. Detail for the board: Surgeon J. M. Gillespie, A. A. Surgeon H. A. Tyler.

A board of officers convened to meet at Providence, R. I., at the call of the chairman, for the purpose of reëxamining an alien—April 29, 1927. Detail for the board: Senior Surgeon H. S. Mathewson, A. A. Surgeon M. W. Houghton.

A board of officers convened to meet at the call of the chairman at Lewes, Del., for the purpose of making a medical survey in the case of an employee of the United States Coast Guard—April 30, 1927. Detail for the board: Surgeon F. A. Carmelia, A. A. Surgeon William P. Orr.

H. S. CUMMING, *Surgeon General.*

REMOVAL

DR. HORACE GRAY has moved to 907 South Lincoln Street, Chicago, Illinois.

REPORTS AND NOTICES OF MEETINGS

JOINT MEETING

BERKSHIRE District Medical Society and Northern Berkshire Medical Society.

Place—Williams Inn, Williamstown, Mass.

Time—Tuesday, June 21st, 1927. Dinner at 6:30 P. M., meeting directly after.

Speakers—Burton Hamilton, M.D., of Boston. Foster Kellogg, M.D., of Boston.

Subjects—"Heart Diseases with Pregnancy." "Toxemias of Latter Half of Pregnancy."

MEETING OF PHYSICIANS AT THE RING SANATORIUM

A MEETING of the New England Society of Physical Therapeutics was held on Wednesday, May 25, at the Ring Sanatorium and Hospital, Arlington Heights, Massachusetts. It was presided over by Dr. Elmer F. Otis of the New England Sanitarium, Melrose, President of the Society.

A luncheon was served in the main dining room of the Sanatorium after which two scientific papers were read at Hambury Hall. Dr. Philip H. Greeley of Portsmouth, New Hampshire, read a paper on the Removal of Tonsils by Electro-coagulation and then demonstrated the method. This paper was discussed by Dr. Geo. J. Ott and Dr. Morris A. Cohen of Boston and by Dr. Arthur L. Brown of Winchester.

Dr. Arthur H. Ring read a paper on Physical Therapeutics in Neuropsychiatry. It was illustrated by lantern slides. Discussion of this paper followed in which Dr. Philip H. Greeley of Portsmouth and Dr. Samuel Harris of Boston participated.

About fifty physicians from various parts of New England were present.

BOOK REVIEW

The Diseases of Infants and Children. By J. P. CROZER GRIFFITH, M.D., Ph.D., Professor of Pediatrics in the Graduate School of Medicine of the University of Pennsylvania, and A. GRAEME MITCHELL, M.D., Professor of Pediatrics, College of Medicine, University of Cincinnati. Second Edition, Reset. Two octavo volumes totaling 1715 pages with 461 illustrations, including 20 plates in colors. Philadelphia and London: W. B. Saunders Company, 1927. Cloth, $20.00 net.

These two large volumes by Griffith and Mitchell represent an encyclopedic account and description of the diseases encountered in pediatrics. Nothing seems to be omitted; everything seems to be treated exhaustively and in this, the second edition, brought up to date so far as the present rapid progress in medical research permits. As a reference work these volumes are of great value, particularly as the sources of the contained references are listed in foot notes. Many of the illustrations are very good; a few are poor.